APPENDIX H

**Coastal Planning & Engineering, Inc.
Nearshore and Offshore Hardbottom Investigation Results**

SUMMARY OF FIELD OBSERVATIONS

Date:	June 2006
Project:	North Topsail Beach Shoreline Protection Project
Location:	North Topsail Beach, North Carolina
Commission Number:	4600.21
Field Representatives:	Erin Hague, Robert Baron, Angela Delaney - Marine Biologists; and Patrick Bardes - Marine Biologist Technician

CPE marine biologists conducted *in situ* investigations in June, August and October 2005 in the near shore (-18 to -25 feet) and offshore (-36 to -44 feet) waters of North Topsail Beach. Field investigations were performed to confirm the delineations of potential and probable hardbottom resources in the project area to collect benthic community data from representative locations.

From June 21 through 24, 2005, CPE marine biologists confirmed the sidescan sonar results of potential and/or probable hardbottom located 1) in the near shore of Onslow Beach, 2) offshore of New River Inlet near a potential sand source location, 3) in the near shore of the north section of North Topsail Beach, and 4) at select sites in the vicinity of the offshore borrow area.

Field investigations conducted from August 3 through 7, 2005 included diver verification of potential and/or probable hardbottom areas located 1) in the New River Inlet Significant Natural Heritage Area, 2) in the central section, including the establishment of four (4) temporary transects (TS5 to TS8) on confirmed hardbottom, 3) along the northwest hardbottom edge between TS10 through TS13, and SNHA 4) at the three USACE sites resulting in only one site (TS9) as diver verified hardbottom. Refer to Figure 1.

The June and August 2005 investigations confirmed near shore hardbottom resources located approximately 350 meters (1,150 feet) from the February-March 2002 mean high water line; and offshore hardbottom areas located 121.9 to 304.9 meters (400 to 1,000 feet) from the proposed borrow area. The hardbottom communities identified by the sidescan sonar results and confirmed by marine biologists in June and August 2005, were quantified in the project GIS to determine the total identified near shore (2,000 feet or less from shore) and offshore (greater than 2,000 feet from shore) hardbottom resources. The near shore hardbottom community totaled 260,537m^2 and the offshore hardbottom totaled 1,652,857m^2. The 'rule of thumb' applied to hardbottom communities without a baseline dataset is to characterize +/-1/10,000th of the area to achieve adequate representation. In using this approach, the optimum sample area is approximately 26m^2 and 165m^2 for the near shore and offshore hardbottom communities, respectively.

Researchers conducted near shore and offshore investigations from October 20 through 23, 2005 to ground-truth and characterize diver verified hardbottom resources identified during the June and August 2005 field investigations. Ten (10) temporary transects (TS5
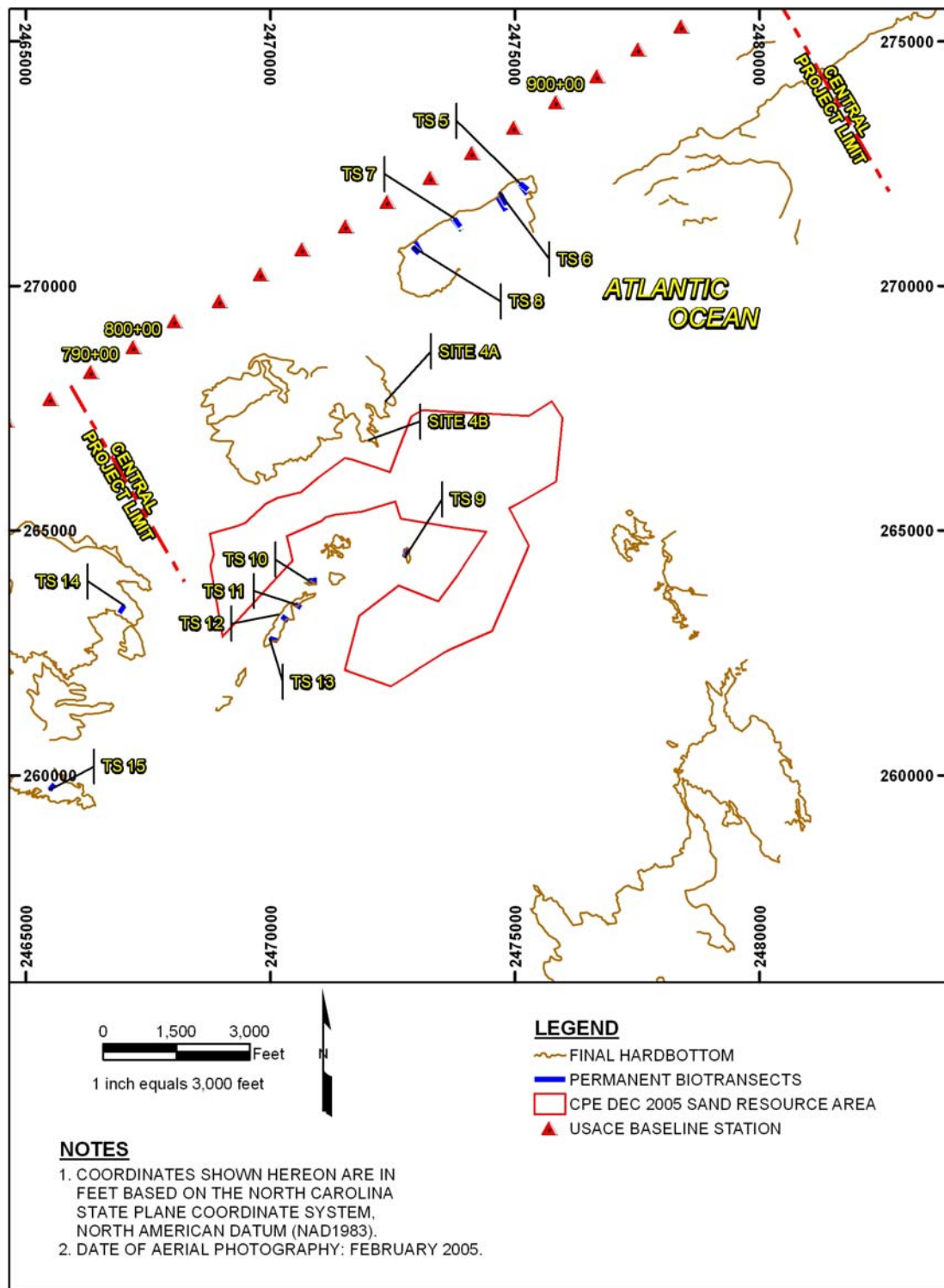
Figure 1

North Topsail Beach
Hardbottom Monitoring Stations

to TS15) were established to characterize the near shore (TS5 to TS8) and the offshore (TS9 to TS15) hardbottom resources. See Figure 1.

Two methods of habitat characterization and documentation were used during these investigations: 1) the Benthic Ecological Assessment for Marginal Reefs (BEAMR) developed by Coastal Planning & Engineering, Inc., and 2) digital video that may be used to further analyze the hardbottom communities present within each study area.   The biological community data collected in October 2005 was input into the project database to be included in a comprehensive pre-construction baseline survey assessment. Refer to the December 2005 Marine Resources Baseline Investigation Plan regarding the BEAMR methodology and video documentation (CPE, 2005).

A summary of findings from the 2005 investigations are provided below.

Near shore Hardbottom Resources

Northern Section

Photos 1 and 2 shown below are representative of the hardbottom features confirmed in the north section (TS1) in June 2005. Heavy sediment and particulate loading observed in the water column during the video collection prevented CPE marine biologists from completing the flora and fauna surveys (visibility ranged from 0 to <30cm). The optical capabilities of a video camera far exceeds human visual optics, therefore the images shown below appear to be in relatively clear water. Further investigations of the north section confirmed hardbottom intermittently exposed between USACE baseline stations 1030+00 to 1070+50.

Oculina robusta

Siphonodictyon coralliphagum
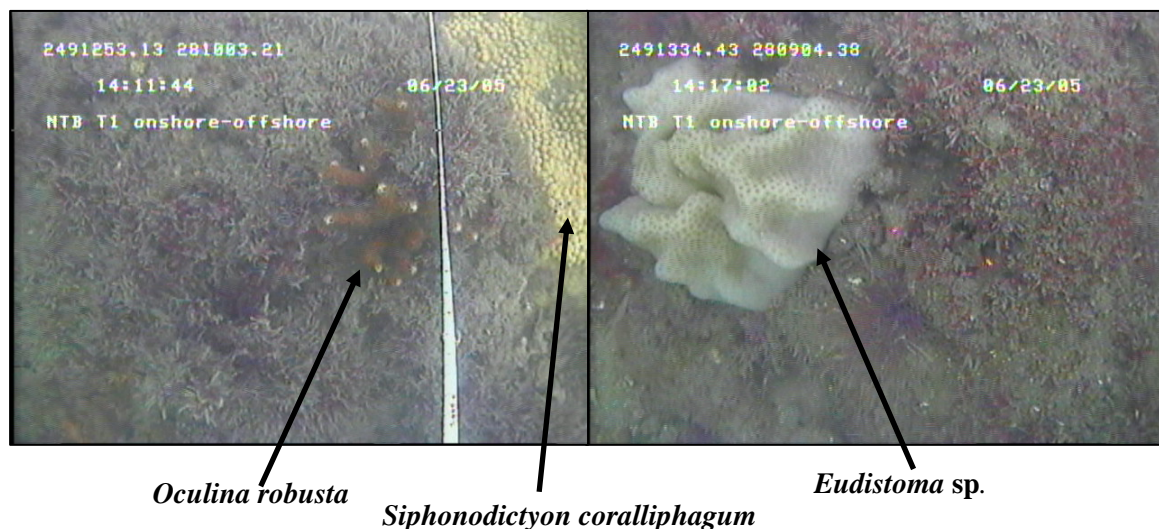
Eudistoma sp.

Photos 1 and 2 – Representative biotic coverage at TS1 shown above includes stony coral (*Oculina robusta*), sponge (*Siphonodictyon coralliphagum*) and tunicate (*Eudistoma* sp.).

During the June 2005 investigations at TS1, investigators used a 1m^2 sample quadrat to collect a representative sample. The measuring tape was laid across the hardbottom feature and was stretched perpendicular to the shoreline for a total of 100 meters, sampling every 10 meters along the transect. Observations of the physical and biological

characteristics of the hardbottom features at TS1 documented the following: minimum and maximum relief recorded 0cm and 60cm, respectively; sediment type is comprised of sand and shell (average sediment depth is 3.2cm); macroalgae cover averaged 4.3% (algal species include *Gelidium*, *Graciliaria*, with *Cryptonemia* and *Dasya* as the dominant types); bare hard substrate averaged 15.4%; stony coral cover (*Oculina robusta*) averaged 1%, ranging in size from <1 to 7 cm; additional functional groups included bryozoans, annelids, porifera, hydroids and tunicates. Poor visibility (averaging 1 to 4 inches) prevented CPE marine biologists from conducting further detailed benthic characterizations on the near shore hardbottom communities of the north section during August and October 2005 investigations. As a result of these limiting conditions, the near shore sample area was limited to the central section.

Central Section

In the central section, hardbottom is exposed between stations 850+50 to 880+50. Four (4) temporary monitoring transects (TS5 to TS8) were established in August and October 2005 on the confirmed hardbottom area. In October, investigators used a 0.25 square meter (0.25m^2) quadrat to sample every 2.5 meters along the 60m temporary transects, for a total sample size of 24m^2. Similar to the offshore monitoring efforts, the BEAMR methodology was used to collect physical and biological characteristics of the hardbottom features in the central section. Results of these investigations confirmed an average relief of 7.32 cm, with a maximum relief measuring 35 cm. Sediment depth averaged 2.3 cm with a maximum depth measured to 10 cm. Sediment type was dominated by sand and shell, with occasional mud, averaging 36% cover of the total sample area. See Photo 3 showing the irregular topography and Rhodophyte (*Cryptonemia* sp.) observed at TS7. *Cryptonemia* is typically found in low-light habitats, which is supported by the poor visibility observed during the 2005 in-water investigations (Littler and Littler, 2000).
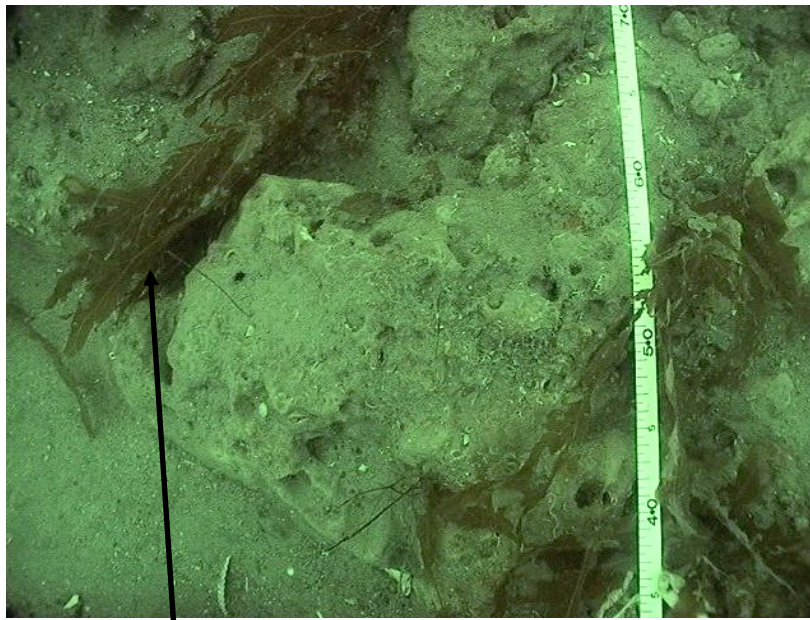
Cryptonemia sp.

Photo 3 – Exposed hardbottom in near shore zone of central section (TS7).

Shell fragments were commonly observed in the limestone substrate, along with a thin veneer of sediment on the limestone. Bryozoans were occasionally observed representing 1% of the sample quadrat in the central section. As opposed to sessile annelids (feather duster worms) which ranged from 0 to 80% cover (ave. 6%) along TS7. Macroalgae cover at stations TS5 through TS8 was documented on 1% of the sample quadrats, dominated by *Cryptonemia* sp. shown above, with occasional *Gracilaria* sp.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the near shore hardbottom sample area is 87.3%. While the average macrobiotic cover is 10.5%.

The fish species observed during the near shore characterization was limited to the black sea bass (*Centropristis striata*). No other fish species were seen during the in-water investigations due to the limited visibility.

A summary of the hardbottom investigations conducted offshore of New River Inlet in June 2005 are not included in this report since the proposed activities for this area are no longer included in the project.

The June 2005 in-water investigations of the nine (9) sites conducted in the near shore of Onslow Beach confirmed coarse sand, fine silt and wooden debris.

Offshore Hardbottom Resources
In June 2005, CPE marine biologists investigated eight (8) probable hardbottom areas (formerly NTB BA Sites 1 through 8) within 300 meters of the proposed borrow area. All eight sites were confirmed hardbottom of varying relief and benthic community coverage. In August 2005, three (3) additional sites (USACE Sites 1 through 3) were investigated for the presence or absence of hardbottom habitats. Only USACE Site 3 was confirmed as hardbottom by CPE marine biologists; while USACE Sites 1 and 2 were confirmed as shell hash. These sites were documented by visual observations of the benthic communities, video documentation and mapping using DGPS positioning and HYPACK®MAX software. A summary of in-water observations conducted at USACE Sites 1 and 2 are not provided in this report.

Due to their proximity to the borrow area, the rock/sand interface at TS10 through TS13 were mapped in August 2005 to delineate the extent of hardbottom communities near the borrow area. The offshore hardbottom located near TS 11 through TS 13 measured 1 to 4 feet in height.

Hardbottom characterizations of the offshore communities were conducted in October 2005, which included the establishment of seven (7) 50 m temporary transects at TS9 through TS15 (formerly USACE 3, BA 1 and 2, 7 and 8). In June 2005, CPE marine biologists confirmed hardbottom at Sites 4A and 4B. However, in October 2005, the hardbottom at these sites was found covered with greater than 60 cm of mud. Therefore a temporary transect was not established at this location.

Transects were established at the sand/rock interface and extended in a southerly direction, away from the borrow area. The distance from the proposed borrow area to

TS15 is approximately 4,400 feet. Project dredging affects are not anticipated due to the distance from the sand resource area, therefore this site will be reported as the control transect (see Figure 1).

Sample stations were established every 2.5 m along the temporary transects using a 1m^2 sample quadrat for a total representative sample size of 140m^2. The BEAMR surveying method was conducted at each of these offshore sites to identify benthic community coverage and diversity, as well as sediment depth and cover.

The average macrobiotic cover per sample quadrat is 5.4% along the offshore transects. Sessile benthos observed along the hardbottom is dominated by macroalgae, octocorals, encrusting red algae, sessile worms and stony corals (presented in decreasing order). The dominant macroalgae observed along the offshore transects is the red algae *Cryptonemia*. The octocoral *Leptogorgia virgulata* averages the greatest percent cover along the offshore transects. This octocoral is one of the most common types found in the South Atlantic Bight, ranging from Chesapeake Bay to Georgia, to the western coasts of Florida and Brazil (SERTC, 2006). *Titanideum frauenfeldii* occurs less frequently on the offshore hardbottom. This octocoral commonly occurs on rock and sand mixed substrates located in current-swept environments (NOAA, 2006). The stony coral *Oculina robusta* is present along most offshore transects as recruits ($\leq$3cm). This shallow water form of *Oculina* has a temperature range of 52 to 93 ^{o}F and is abundant off the west coast of Florida (Reef, 2006; Humann, 2002). Results from aquarium observations conducted by the Reef Ball Foundation, Inc. indicated that *O. robusta* is "very hardy" and has a high silt tolerance (Reef, 2006). Refer to Photo 4.
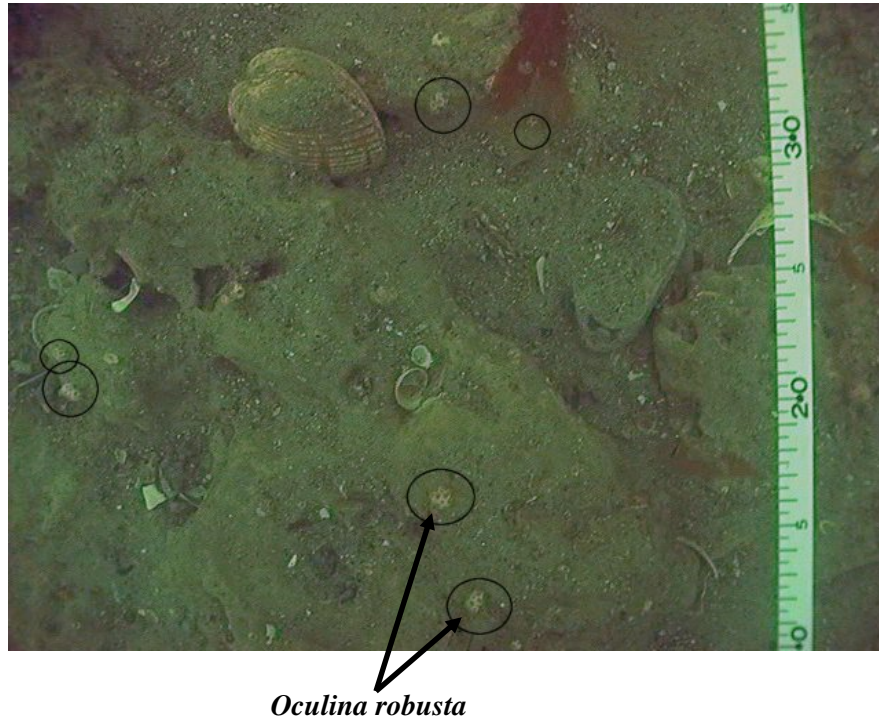

Oculina robusta

Photo 4 – *Oculina robusta* stony coral recruits observed at TS9 during the October 2005 in-water investigations.

The average non-biotic cover (e.g., turf, cyanobacteria, sediment, and bare hard substrate) occurring along the offshore hardbottom, as observed along the representative monitoring transects, is 94.2%. The maximum height measured within the offshore sample quadrats is 35 cm (average 4 cm). The average sediment cover per sample quadrat is 83.5% with a maximum depth measured at 30 cm (average depth 9 cm). Visual observations of the surface sediment indicated that it is primarily composed of sand and shell fragments.

New River Inlet Outcrop- Significant Natural Heritage Area (SNHA)
In August 2005, CPE marine biologists investigated four (4) probable hardbottom areas identified from the side scan sonar results and located in the New River Inlet Outcrop SNHA. The four areas are identified in the project GIS as SNHA 1, 2, 4 and 4A. All four probable hardbottom areas are located in the western region of the SNHA. Both SNHA 1 and 2 are low relief ($\leq$ 30 cm) hardbottom features with 3 to 4 cm of sediment covering the rock. Tunicates, sponges, encrusting red algae and the stony coral *Oculina robusta* were common at both sites. The *O. robusta* corals ranged in size from 2 to 5 cm at SNHA 2. No attached macroalgae was observed at SNHA 1. At SNHA 2, the chlorophytes *Caulerpa* and *Codium* were present, as well as the phaeophytes *Dictyota*, *Lobophora* and *Sargassum*.

Investigation areas SNHA 4 and 4A are located in proximity to one another near the northwest corner of the New River Inlet Outcrop SNHA. SNHA 4 is a ridge and trough feature that was observed with a thin veneer of sand and silt. The maximum relief measured at this site was 45 cm. CPE marine biologists observed a 2.1 meter stepping ledge with a maximum base depth of 32 feet and a minimum platform depth of 25 feet. In addition to the organisms observed at SNHA 1 and 2; hydroids, red cyanobacteria mats, the rhodophyte *Gracilaria* and the red coralline algae *Amphiroa* were also observed. *O. robusta* colonies observed at SNHA 4A were measured between 2 and 3 cm, with an occasional 5 cm colony.

The following table lists the finfish observed near the offshore hardbottom stations during the August 2005 investigations.

Common Name	Scientific Name
GRUNTS	**HAEMULIDAE**
White Grunts	*Haemulon plumierii*
Tomtate	*Haemulon aurolineatum*
pigfish	*Orthopristis chrysoptera*
Unidentified juvenile grunts	*Haemulon* sp.
PORGIES	**SPARIDAE**
Spottail Pinfish	*Diplodus holbrooki*
Pinfish	*Lagodon rhomboides*
Longspine Porgy	*Stenotomus caprinus*
Sheepshead	*Archosargus probatocephalus*
Scup	*Steotomus chrysops*
DRUMS	**SCIAENIDAE**
Highhat	*Pareques acuminatus*
GOATFISH	**MULLIDAE**
Dwarf Goatfish	*Upeneus parvus*
COMBTOOTH BLENNIES	**BLENNIIDAE**
Seaweed Blenny	*Parablennius marmoreus*
MACKERELS	**SCOMBRIDAE**
Spanish Mackerel	*Scomberomorus maculatus*
PUFFERFISH	**TETRAODONTIDAE**
Bandtail Puffer	*Sphoeroides spengleri*
Sharpenose Puffer	*Canthigaster rostrata*
SEABASSES AND GROUPERS	**SERRANIDAE**
Black Sea Bass	*Centropristis striata*
Pygmy Sea Bass	*Seranniculus pumilio*
Belted Sandfish	*Serranus subligarius*
JACKS	**CARANGIDAE**
Bar Jack	*Caranx ruber*
Mackerel Scad	*Decapterus macarellus*
Unidentified Scad	*Selar/Decapterus* sp.
SPADEFISH AND SILVERSIDES	**EPHIPPIDAE**
Atlantic Spadefish	*Chaetodipterus faber*
TOADFISH AND SCORPIONFISH	**BATRACHOIDIDAE**
Leopard Toadfish	Opsanus pardus
WRASSES	**LABRIDAE**
Slippery Dick	*Halichoeres bivittatus*
FLOUNDER	**PARALICHTHYIDAE**
Summer Flounder	Paralichthyus dentatus
LIZARDFISH	**SYNODONTIDAE**
Sand Diver	*Synodus intermedius*
REMORA	**ECHENEIDAE**
Whitefin Sharksucker	*Echeneis neucratoides*

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FIELD OBSERVATION REPORT

DATE:	August 29-30, 2006
PROJECT:	North Topsail Beach Shoreline Protection Project
COMMISSION NUMBER:	4600.55/5
LOCATION:	North Topsail Beach, North Carolina
FIELD REPRESENTATIVES:	E. Hague (Senior Marine Scientist), M. Lybolt (Senior Marine Biologist), C. Barrett (Marine Biologist), J. Craft (Marine Biologist), K. Willson (Coastal Geologist), A. Spencer (Marine Technician)

Introduction

In June 2006, the Southern Section (USACE baseline stations 580+00 to 781+00) was added to the North Topsail Beach Shoreline Protection project. Investigations were therefore needed to determine if hardbottom resources are located in the nearshore (152 to 457 m)of the South Section or near the extended offshore borrow area approximately 767 m from the 2002 mean high water line at USACE baseline stations 850+00 to 890+00.

Sidescan sonar surveys were first conducted in August 2006 by Coastal Planning & Engineering, Inc. (CPE) geologists to determine if potential and probable hardbottom resources exist in the extended project area. Following the survey data reduction, CPE marine biologists and geologists conducted underwater (SCUBA) reconnaissance surveys to confirm the presence or absence of these resources. In addition to confirming hardbottom resources, goals of these investigations included: 1) establish two additional temporary monitoring transects (TS 16 and TS 17) near the offshore borrow area, as requested by the NCDCM; 2) collect baseline turbidity samples in the nearshore and offshore water column; and 3) collect relief measurements monitoring stations TS 11 and TS 12; and 4) determine the feasibility of placing hardbottom monitoring stations in the nearshore of the Southern Section.

Mobilization

Two field boats (Scuba Tech – *M/V Tsunami* and *M/V Seahawk*) were mobilized at 0700 hours on August 29th. The CPE crews arrived at the first investigation sites at approximately 0900 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m at 0900 hours and increased to 1.2 to 1.8 m at 1400 hours. Winds ranged from 10 to 15 mph and a north current of ≤0.5 knots was observed. The two boats with CPE crew returned to the dock at 1600 hours.

On August 30th, one field boat (*M/V Tusnami*) was mobilized by the CPE crew with a captain from Scuba Tech. The crew left the fuel dock at 0730 hours and arrived at the first site at 0825 hours. Air temperature during the survey was approximately 83°F (28°C). Sea state conditions were 0.6 to 0.9 m seas at 0900 hours and increased to 1.2 to 1.8 m at 1430 hours. Winds ranged from 10 to 25 mph with a slight north current. The CPE crew returned to the dock at 1700 hours.

Methods

The divers descended on a buoy deployed near the center of each potential and/or probable hardbottom area, and proceeded to conduct an exploratory search around the buoy for significant benthic resources. If none were found in the vicinity of the buoy, divers would then swim a compass bearing through the longest axis of the potential habitat. If an isolated resource or point of interest was observed, divers would record the location by pulling the dive flag below the surface of the water several times, signaling the boat crew to record the position using a Trimble AgDGPS Global Positioning System (GPS) with Pro Beacon. The buoy was on the shortest possible tether, such that the buoy was positioned directly over the sampling location. The positioning data were recorded and stored in the HYPACK 6.2a software program, a multi-functional navigation and hydrographic surveying program. Transitions in sediment were also recorded (*e.g.*, mud to sand, shellhash).

Benthic characterization along the temporary transects (confirmed hardbottom habitat) included the BEAMR methodology supported by videographic documentation.

Results

Investigations conducted offshore of USACE baseline station 850+00 (seaward of TS 5 to TS 8) confirmed mud, sand and shellhash. No hardbottom resources were found in this area. Refer to Figure 1.

Temporary transects were established offshore of USACE baseline station 800+00, identified as TS 16 and TS 17. BEAMR data was collected at these sites by a qualified marine biologist to characterize the benthic community. Underwater video was also collected along the transect line. Sample data was recorded every 2.5 m along the 50 m transect. Species observed were similar to those recorded at the offshore transects, with the exception of the octocorals *Titanidium* sp. and *Carijoa* sp.

At TS 11 and TS 12, relief measurements were collected landward side of the exposed hardbottom formation to determine if these features qualified as "high relief" under the North Carolina definition. The North Carolina code NCAC 07H. 0208(b)(12)(A)(iv)) states "*Mining activities shall not be conducted on or within 500 meters of significant biological communities, such as high relief hardbottom areas. High relief is defined for this standard as relief greater than or equal to one-half meter per five meters of horizontal distance.*" Vertical relief was measured for five meters in either direct (northeast and southwest) from the start of the transect. The results determined that the average relief along TS 11 is 0.16 m; while average relief along TS 12 ranges from 0.40 to 0.45 m. Relief measurements collected at the time of these investigations determined that these resources do not qualify as high relief under the State definition. BEAMR data and video was also collected at TS 11 and TS 12.

Underwater investigations conducted in the nearshore of the Southern Section confirmed to areas of hardbottom resources (near USACE baseline station 670+00 and between 725+00 and 750+00). CPE marine biologists attempted to establish temporary transects (TS 18 and TS 19) between 725+00 and 750+00, however poor visibility prevented divers from collecting data. These sites will be included in future investigations. Refer to Figure 2.
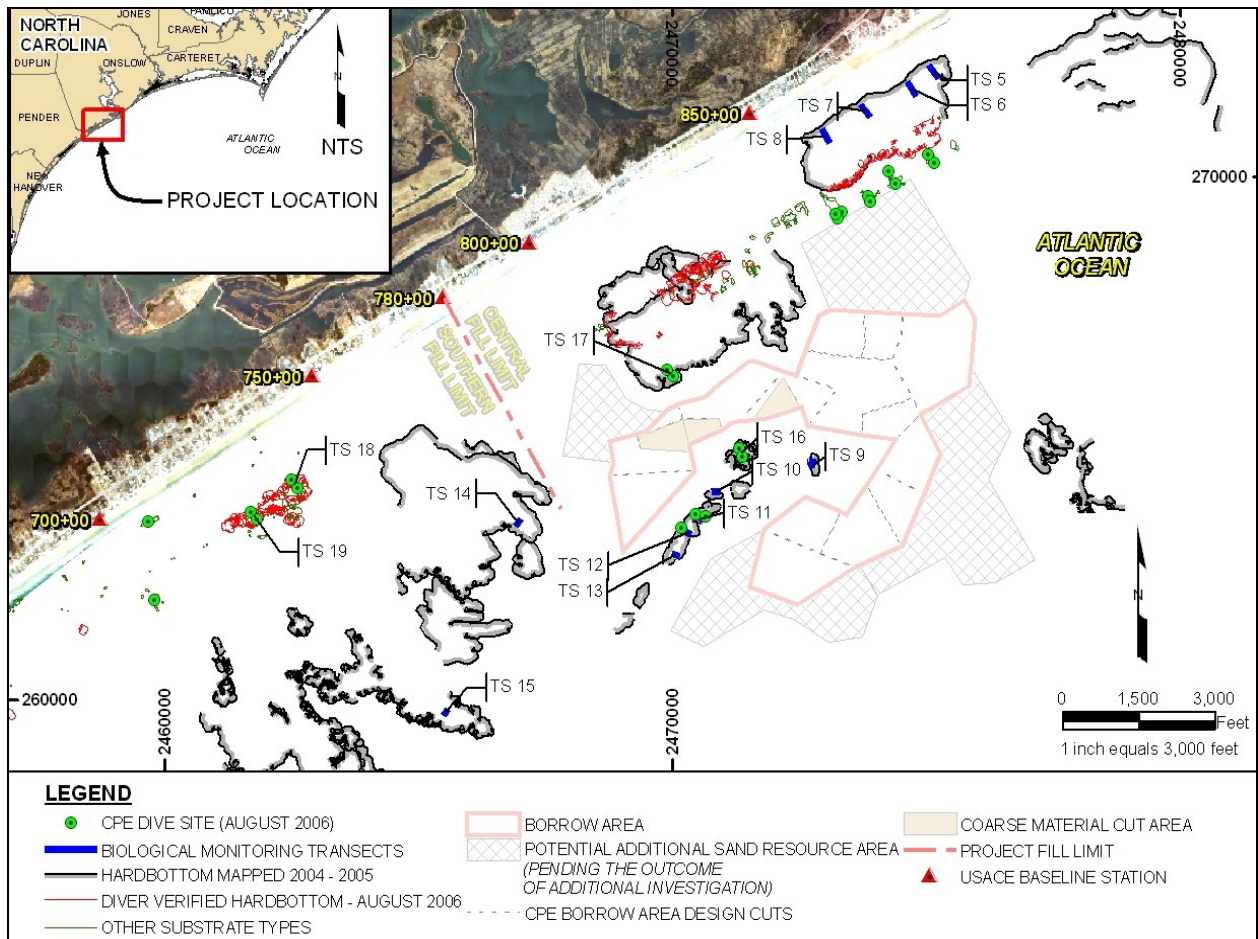
Figure 1. Underwater investigation sites of potential and probable hardbottom resources. August 2006 dive locations shown as green targets.

Water quality data was also collected at four sites in the nearshore and offshore during the August 2006 investigations. Turbidity levels were measured using a LaMotte 2020 turbidimeter. In the nearshore (USACE baseline stations 590+00 and 595+00), turbidity levels were measured at 35.2 and 9.67 Nephelometric Turbidity Units (NTU). Samples were collected at depth, approximately 2 m above the seafloor.

Turbidity samples collected in the offshore, at depth, include TS 12 (4.5 NTU), TS 16 (0.50 and 0.76 NTU) and TS 19 (-17.6, 22.5 and 23.0 NTU). Surface samples were also collected at TS 17 which averaged 0.43 NTU. The results of the turbidity sampling confirmed the poor visibility observed during the underwater investigations.

Additionally, the hardbottom edge digitized from the 2005 and 2006 sidescan sonar surveys at TS 18 and TS 19 indicated a change in exposed hardbottom from 5.25 acres in 2005 to 8.27 acres in 2006. The three acre change in exposed hardbottom confirms the ephemeral nature of this resource.
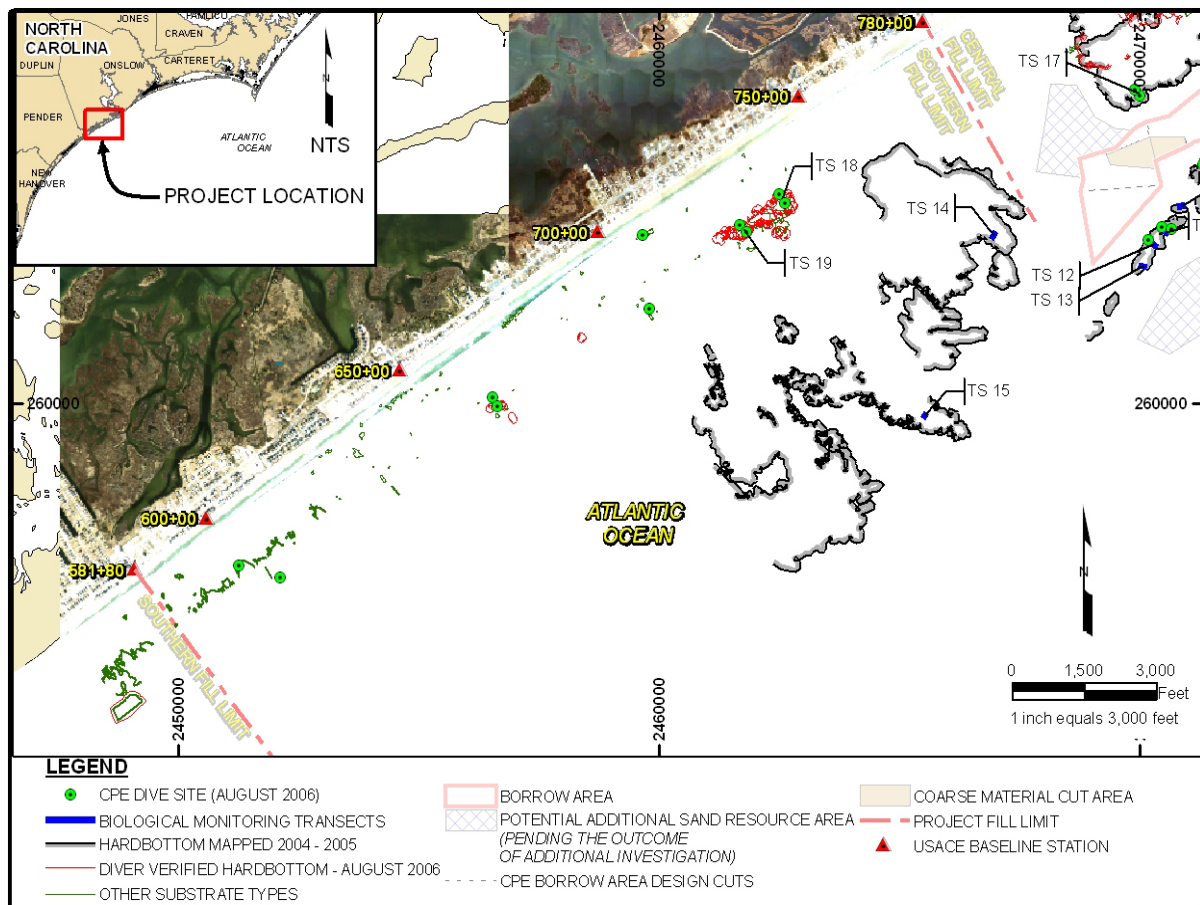
Figure 2. Underwater investigations in the nearshore of the Southern Section confirmed two hardbottom areas (near USACE baseline station 670+00 and between 725+00 and 750+00).

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Quad Label: 0

Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Trdemnun	2
Max Sediment Depth (cm)	2	Lepto-V	31/35/28
Sessile Benthos...	% Cover	O.rob = 1 cm	14
Sediment- (circle all: sand shell mud)	86	Lepto-V	16/15
Macroalgae- Fleshy+Calcareous	1	Carijoa	2/4/1
Turf- algae+cyanobacteria (circle all: g r (b))	2	O.rob = 1cm	9
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0		
Octocoral	2		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Bivalve	1		
Annelid	1	Annelid	1

Total Must = 100%

Quad Label: 12.5

Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	-		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	75		
Macroalgae- Fleshy+Calcareous	1	Trclemnun	6/4
Turf- algae+cyanobacteria (circle all: g (b)) 10	15	Trclemnun	6/5
Encrusting Red Algae	3	Lepto-h	7
Sponge	0	O.rob = 1cm	16
Hydroid	0	O.rob = 1cm	26
Octocoral	1	O.rob / cm	17
Stony Coral	1		
Tunicate	2		
Bare Hard Substrate	1		
other-... Bryoz	1		

Total Must = 100%

Quad Label: 15

| Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Lepto-V	3/9
Max Sediment Depth (cm)	7	Trclemnun	3/3
Sessile Benthos...	% Cover	Carijoa	2/2
Sediment- (circle all: sand shell mud)	55	Lepto-h	7
Macroalgae- Fleshy+Calcareous	1	O.rob = 1cm	23
Turf- algae+cyanobacteria (circle all: g r (b)) 20	34	O.rob = 1cm	6
Encrusting Red Algae	3		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Annelid	1		
Bryoz	1		

Total Must = 100%

Quad Label: 17.5

Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Trclemnun	5
Max Sediment Depth (cm)	5	Trclemnun	8/5/10
Sessile Benthos...	% Cover	Carijoa	1/2
Sediment- (circle all: sand shell mud)	65	Lepto-V	4/17 2/15
Macroalgae- Fleshy+Calcareous	1	Carijoa	34/1/2
Turf- algae+cyanobacteria (circle all: g (b))	16	O.rob	1/3/1/1
Encrusting Red Algae	12		4/1/12
Sponge	0		1/2/1/1
Hydroid	1		1/1
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	1		
other-... Bryoz	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexeura=Psl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hva, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad Label: _0_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14		
Max Sediment Depth (cm)	3	Carijoa	3
Sessile Benthos...	% Cover	Lepto-V	33
Sediment- (circle all: sand shell mud)	55	O.rob	1/1/1/1
Macroalgae- Fleshy+Calcareous	1		1/1/1/1
Turf- algae+cyanobacteria (circle all: g r b)20	47		1/1/1/1
Encrusting Red Algae	3		1/1/1/1
Sponge	1		1/1/1/1
Hydroid	1	V	1/1
Octocoral	1		
Stony Coral	1		
Tunicate	3		
Bare Hard Substrate	2		
other-... Annelid	2		
Bryozoan	2	Anemone	
Total Must = 100%			

Quad Label: _25_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	4	Carijoa	2/3
Sessile Benthos...	% Cover	O.rob	1/1/1
Sediment- (circle all: sand shell mud)	65		1/1
Macroalgae- Fleshy+Calcareous	1		1/1
Turf- algae+cyanobacteria (circle all: g r b)10	27		1/1/1
Encrusting Red Algae	2		1/1/1
Sponge			1/1
Hydroid	1		1/1/1
Octocoral	1	V	
Stony Coral	1	Lepto-V	
Tunicate			
Bare Hard Substrate			
other-... Anemone	1		
Total Must = 100%			

Quad Label: _5_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Carijoa	3/3
Max Sediment Depth (cm)	2	Lepto-V	23
Sessile Benthos...	% Cover	O.rob	1/1/1
Sediment- (circle all: sand shell mud)	60		1/1/1
Macroalgae- Fleshy+Calcareous	1		1/1/1
Turf- algae+cyanobacteria (circle all: g r b)10	31		1/1/1
Encrusting Red Algae	3	V	1/1
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	2		
other-... Bryozoan	1		
Total Must = 100%			

Quad Label: _75_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover	C.rob = 1cm	1/3
Sediment- (circle all: sand shell mud)	50	U.rob = 1cm	1/1
Macroalgae- Fleshy+Calcareous	1	O.rob = 1cm	3
Turf- algae+cyanobacteria (circle all: g r b)30	40		
Encrusting Red Algae	4		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid			
Total Must = 100%			

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int..
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	7		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99	Lepto-V	28
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	2		
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	89	Lepto-V	43/28/13
Macroalgae- Fleshy+Calcareous	1	Lepto-V	39 37
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	=		
Sponge	0	O.rob	
Hydroid	0		
Octocoral	5		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Annelid	1		

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	5	Gorgjoin	1/2
Sessile Benthos...	**% Cover**	Lepto-V	75
Sediment- (circle all: sand shell mud)	10	Lepto-V	37/35/32
Macroalgae- Fleshy+Calcareous	1	Tridemum	8,7
Turf- algae+cyanobacteria (circle all: g r b) 10	17	O.rob=1cm	10
Encrusting Red Algae	4	O.rib=1cm	4
Sponge	1	O.rob=1cm	11
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	2		
other-... Bryoz	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg,

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psr

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P eme, O dif, S rad, S sid, S bou, S hya, S in

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name 1-3 AC **Site Name / Transect Name** T16

Date 8/2 **Data Collector** SC **Data Entry**

Quad Label: 30 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	O.10b IIIX	1
Max Sediment Depth (cm)	7	O.10b IIII	2
Sessile Benthos...	**% Cover**	Titan	7
Sediment- (circle all: sand shell mud)	80	Titan	5
Macroalgae- Fleshy+Calcareous	1	C.Vir	32
Turf- algae+cyanobacteria (circle all: g r b)	8	Vir	31
Encrusting Red Algae	1	ari	4
Sponge	0		
Hydroid	1		
Octocoral	2		
Stony Coral			
Tunicate	0		
Bare Hard Substrate	0		
other-... mud			
2			

Total Must = 100%

253

Quad Label: 275 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max si~ (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

254

Quad Label: / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cov~ or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Serg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name NTSB · NC   **Site Name / Transect Name** TJ16

Date 8/28/06   **Data Collector** JC   **Data Entry**

Quad Label: 55 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	Titan	5
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0	Titan	2
Octocoral	1	Ca.	1
Stony Coral	1	20	
Tunicate	0		
Bare Hard Substrate	1	O nu	1
other-... Will	1	~ 0	4
		new coral	

Total Must = 100%

Quad Label: 475 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Titan	5
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95	0. 06	1
Macroalgae- Fleshy+Calcareous		bl	
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... bryo	1		

Total Must = 100%

Quad Label: 45 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	L. vira	40
Max Sediment Depth (cm)	9	L. vira	4
Sessile Benthos...	% Cover	L. vira	40
Sediment- (circle all: sand shell mud)	96	Titan	3
Macroalgae- Fleshy+Calcareous		Titan	3
Turf- algae+cyanobacteria (circle all: g r b)		L. virg	80
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	3		
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: 425 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% c or max size (cm)
Max Relief (cm)	4	vira	34
Max Sediment Depth (cm)	8	Titan	1
Sessile Benthos...	% Cover	Titan	9
Sediment- (circle all: sand shell mud)	94	Titay	4
Macroalgae- Fleshy+Calcareous	0	Cau	5
Turf- algae+cyanobacteria (circle all: g r b)	0	Car	3
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	0		
Tunicate			
Bare Hard Substrate	1		
other-... bryo	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Red to Genus = Genu or Genus; Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name   **Site Name / Transect Name**

Date   **Data Collector**   **Data Entry**

Quad Label: ~~40~~		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	3	vir	25
Max Sediment Depth (cm)	5	heb	10
Sessile Benthos...	**% Cover**	heb	
Sediment- (circle all: sand shell mud)	94	Titan	10
Macroalgae- Fleshy+Calcareous	0	Titan	6
Turf- algae+cyanobacteria (circle all: g r b)	3	titan	3
Encrusting Red Algae	1	Titan	2
Sponge		Titan	3
Hydroid	0	Titan	6
Octocoral	0	Titan	8
Stony Coral	0	Titan	5
Tunicate	0	Titan	2
Bare Hard Substrate	1		
other-... worm	1		

Total Must = 100%

Quad Label: ~~37.5~~		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #		0.06	
Max Relief (cm)	8	bl	
Max Sediment Depth (cm)	9	Titan	2
Sessile Benthos...	**% Cover**		6
Sediment- (circle all: sand shell mud)	89		6
Macroalgae- Fleshy+Calcareous			9
Turf- algae+cyanobacteria (circle all: g r b)	0		1
Encrusting Red Algae			
Sponge		vir	
Hydroid	0	vir	
Octocoral	3	vir	
Stony Coral			
Tunicate		heb	
Bare Hard Substrate		Cor	
other-...		Dro	
worm	1	Titan	
		heb	11

Total Must = 100%

Quad Label: ~~35~~		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #		rob	2
Max Relief (cm)	0	rob	0
Max Sediment Depth (cm)	5	rob	
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	88	vir a	28
Macroalgae- Fleshy+Calcareous	0	vir a	56
Turf- algae+cyanobacteria (circle all: g r b)		vir a	40
Encrusting Red Algae	1	vir a	56
Sponge		Titan	
Hydroid	0		10
Octocoral	3		3
Stony Coral			
Tunicate	0		6
Bare Hard Substrate			7
other-... drym			4
bryo	1	worm	

Total Must = 100%

Quad Label: ~~30~~		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cov or max (cm)
Sample Name or #		vir	30
Max Relief (cm)	5	vir	34
Max Sediment Depth (cm)	3	Titan	
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	15		8
Encrusting Red Algae			9
Sponge	2		8
Hydroid	0		6
Octocoral	2		5
Stony Coral			
Tunicate	0		
Bare Hard Substrate	5		10
other-... worm	2		7
bryo	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hva, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name: NJTB

Site Name / Transect Name: Offshore TJI7

Date: 8/29/06

Data Collector:

Data Entry:

Quad Label: 0 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	25	O rc	7
Max Sediment Depth (cm)	9	Cau 20	
Sessile Benthos...	% Cover		E
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	0	Gr rc	5
Turf- algae+cyanobacteria (circle all: g r b)	84		
Encrusting Red Algae	4		
Sponge	2		
Hydroid	1		
Octocoral	2		
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	3		
other-... worm	0		
	5		

276

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	O rcb	7
Max Sediment Depth (cm)		O cb	11
Sessile Benthos...	% Cover	O rc	9
Sediment- (circle all: sand shell mud)	0	O rc	18
Macroalgae- Fleshy+Calcareous mixed w/ori	0	rcb	2
Turf- algae+cyanobacteria (circle all: g r b)	14	O rc	
Encrusting Red Algae	2		
Sponge	0		
Hydroid	0		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-... worm	2		

277

Total Must = 100%

Quad Label: 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Gr ac	10
Max Sediment Depth (cm)	3	Amari	1
Sessile Benthos...	% Cover	mb	5
Sediment- (circle all: sand shell mud)	12	O rcb	10
Macroalgae- Fleshy+Calcareous	8	O b	5
Turf- algae+cyanobacteria (circle all: g r b)	53		7
Encrusting Red Algae	7	O	12
Sponge	0	L virg	92
Hydroid	1		
Octocoral	6		12
Stony Coral	3	L virg	60
Tunicate	3	Cau	4
Bare Hard Substrate			5
other-... worm	2		
bryo	3		

278

Total Must = 100%

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% c or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		58
Sediment- (circle all: sand shell mud)	8		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	8		
Encrusting Red Algae	2	virg	
Sponge	2	virg	23
Hydroid	1	epto	8
Octocoral	2		15
Stony Coral	4		20
Tunicate	1		12
Bare Hard Substrate			
other-... worm	2		

279

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarr...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name
Site Name / Transect Name
Date **Data Collector** **Data Entry**

Quad Label: 10		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	10	Ampi	4
Max Sediment Depth (cm)	3	Glac	3
Sessile Benthos...	**% Cover**	Sara	
Sediment- (circle all: sand shell mud)	12	O.rob	8
Macroalgae- Fleshy+Calcareous	10	O.roh	11
Turf- algae+cyanobacteria (circle all: g r b)	54		9
Encrusting Red Algae		11	4
Sponge	8		2
Hydroid	2		3
Octocoral	2		6
Stony Coral	3		5
Tunicate	6	Orob	10
Bare Hard Substrate	2	Cri sp	
other-... worm			
Dr40			
Total Must = 100%			

Quad Label: 12.5		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	5	Ernoc-6	
Max Sediment Depth (cm)	2	Ampi 4	
Sessile Benthos...	**% Cover**	Sara 3	
Sediment- (circle all: sand shell mud)	12	O.rob	9
Macroalgae- Fleshy+Calcareous	15	O.rob	7
Turf- algae+cyanobacteria (circle all: g r b)	49	C.rob	8
Encrusting Red Algae	3		8
Sponge	10		11
Hydroid	1		5
Octocoral	5		
Stony Coral	2	Titan	
Tunicate	1	Titan	
Bare Hard Substrate	3		
other-... worm	2	Titan	15
Dr40			
Total Must = 100%			

Quad Label: 15		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	7	Grac	3
Max Sediment Depth (cm)	1	Ampi	4
Sessile Benthos...	**% Cover**	Dicty	
Sediment- (circle all: sand shell mud)	15	Sara	1
Macroalgae- Fleshy+Calcareous	10	eptir	12
Turf- algae+cyanobacteria (circle all: g r b)	50	Lvir	62
Encrusting Red Algae	2	Titan	10
Sponge	4	O.rob	1
Hydroid	1		6
Octocoral	5		2
Stony Coral	4		1
Tunicate	2		13
Bare Hard Substrate	3		9
other-... worm	2	Cri s	
Dr40	2		
Total Must = 100%			

Quad Label: 17.5		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max (cm)
Sample Name or #			
Max Relief (cm)	15	Gra	12
Max Sediment Depth (cm)	1	Ampi	3
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	12	O.rob	2
Macroalgae- Fleshy+Calcareous	18		4
Turf- algae+cyanobacteria (circle all: g r b)	40		3
Encrusting Red Algae	4	Cri sp	3
Sponge	4		
Hydroid	2		1
Octocoral	1		2
Stony Coral	1		
Tunicate	6		
Bare Hard Substrate	5		
other-... worm	3		
Dr40	4		
Total Must = 100%			

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sar...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plia, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name   **Site Name / Transect Name**

Date   **Data Collector**   **Data Entry**

Quad Label: _80_ Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Mac	5
Max Sediment Depth (cm)		Emph	4
Sessile Benthos...	**% Cover**	Sarg	2
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	13	hib	21
Turf- algae+cyanobacteria (circle all: g r b)	55	O.mb (11)	8
Encrusting Red Algae	3	O.ub	1
Sponge	10	O.mb	2
Hydroid	2	Con sp (III)	<12
Octocoral	3	(II)	4
Stony Coral	2	(III)	2
Tunicate	2	(III)	3
Bare Hard Substrate	6		O
other-... bilio	6		
Coth	2		

Total Must = 100%

Quad Label: _22.5_ Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Cur	
Max Sediment Depth (cm)	3	A	2
Sessile Benthos...	**% Cover**	Sarg	
Sediment- (circle all: sand shell mud)	8		
Macroalgae- Fleshy+Calcareous	12	hib	
Turf- algae+cyanobacteria (circle all: g r b)	52	L	
Encrusting Red Algae	2	O.ab	
Sponge	6	O.m	
Hydroid	1	O.m	
Octocoral	3	M	
Stony Coral	1	Cor	4
Tunicate	3	G.	
Bare Hard Substrate	10	Ca	
other-... unkn	1	O.o	
orufo	1		

Total Must = 100%

Quad Label: _____ Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: _____ Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothemnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad Label: 0   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Amphiroa	6
Max Sediment Depth (cm)	2	Sarg	1
Sessile Benthos...	% Cover	Grac	1
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	9	Carijoa	12/1/4/3
Turf- algae+cyanobacteria (circle all: g t b)30	52	Lepto-V	42/98
Encrusting Red Algae	4	Carijoa	5/4/1/-
Sponge	6	O.rob	3/1/1/0
Hydroid	2	Carijoa	2/12/2
Octocoral	4	O.rob	10/1/2/2
Stony Coral		Lepto-h	16/7
Tunicate	6	Carijoa	2/2
Bare Hard Substrate	2	Plexaurum	6
other-... Bryoz	3		
Annelid			

Total Must = 100%

Quad Label: 205   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	C	Amphiroa	6
Max Sediment Depth (cm)	1	Sarg	2
Sessile Benthos...	% Cover	Grac	1
Sediment- (circle all: sand shell mud)	2	Carijoa	2/2/1/1
Macroalgae- Fleshy+Calcareous	10	O.rob	2/3/2/1
Turf- algae+cyanobacteria (circle all: g t b)20	61	Tridemnum	18/6
Encrusting Red Algae	4	Carijoa	1/2/1/1/1
Sponge	8	O.rob	1/2/2
Hydroid	3	Carijoa	7/1/1/2
Octocoral	1	O.rob	1/4/3
Stony Coral	1	C.rao	3/1/1/1
Tunicate	6	Carijoa	1/2/1/2
Bare Hard Substrate	1	Carijoa	1
other-... Bryoz	2		
Bivalve	1		

Total Must = 100%

Quad Label: 25m   **Sample Name or #** 3 / 4 deep

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		like Gracilorg	1
Max Sediment Depth (cm)		Sarg	2
Sessile Benthos...	% Cover	Amphiroa	4
Sediment- (circle all: sand shell mud)	6	Carijoa	3/1/2/5
Macroalgae- Fleshy+Calcareous	8 ML	Lepto-h	7
Turf- algae+cyanobacteria (circle all: g r b)	60 ML	Lepto-V	14/65/47
Encrusting Red Algae	6	Lepto-V	40/70
Sponge	5	Carijoa	2/2/2
Hydroid	3	O.rob	2/1
Octocoral	4	O.rob	5/4/1
Stony Coral	1	Carijoa	3/2/1
Tunicate	5		
Bare Hard Substrate	1 ML		
other-... Annelid	1		

Total Must = 100%

Quad Label: **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad 1 — Quad Label: (?)

Sample Name or #	% Cover	List macroalgae Genus % / every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Sarg	4
Max Sediment Depth (cm)	2	Vict...	3
Sessile Benthos...	% Cover	...	8
Sediment- (circle all: sand shell mud)	—		
Macroalgae- Fleshy+Calcareous	10	Carijoa	3/2
Turf- algae+cyanobacteria (circle all: g r b) 10	57		
Encrusting Red Algae	4	Lepto-l	6/85
Sponge	8	O. rob	2/3
Hydroid	2	Carijoc	/8/6
Octocoral	2	O. rob	4/4
Stony Coral	22	O. rob	7/3
Tunicate	4	Carijoa	1/6/9
Bare Hard Substrate	2	O. rob	1/1
other-...			3/3/1

Total Must = 100%

Quad 2 — Quad Label: 37.5

Sample Name or #	% Cover	List macroalgae Genus % / every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Sarg	—
Max Sediment Depth (cm)	1	Grac	
Sessile Benthos...	% Cover	Amphiroa	5
Sediment- (circle all: sand shell mud)	1		
Macroalgae- Fleshy+Calcareous	13	O. rob	1/3/1/3
Turf- algae+cyanobacteria (circle all: g r b) 2	55	Carijoa	1/3/1
Encrusting Red Algae	4	Carijoa	1/2/1
Sponge	12	O. rob	3/4
Hydroid	2	O. rob	1/3/4
Octocoral	0	Carijoa	1/8/1
Stony Coral	2	Carijoa	1/
Tunicate	5	O. rob	2/1
Bare Hard Substrate	3		
other-... Bivalve	1		
Annelid	1	Bryoz	1

Total Must = 100%

Quad 3 — Quad Label: 35

Sample Name or #	% Cover	List macroalgae Genus % / every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		Sarg	3
Max Sediment Depth (cm)	3	Victyota	3
Sessile Benthos...	% Cover	Amphiroa	5
Sediment- (circle all: sand shell mud)	12		
Macroalgae- Fleshy+Calcareous	2	O. rob	4/1/5
Turf- algae+cyanobacteria (circle all: g r b) 20	39	Carijoa	1/2/4/1
Encrusting Red Algae	5	Lepto-V	100
Sponge	12	O. rob	4/3/6
Hydroid	5	Carijoc	5/3/1/1
Octocoral	2	Carijoa	1/1/1/2
Stony Coral	2	O. rob	6/1
Tunicate	8	Carijoa	2/1/3
Bare Hard Substrate	2	Lepto-h	6
other-... Annelid	1	Tridemnum	24
Bivalve	1	Barnacle	

Total Must = 100%

Quad 4 — Quad Label: 32.5

Sample Name or #	% Cover	List macroalgae Genus % / every coral colony ~and coral condition(s)	% c. or max size (cm)
Max Relief (cm)		Sarg	5
Max Sediment Depth (cm)		Grac	2
Sessile Benthos...	% Cover	Amphiroa	5
Sediment- (circle all: sand shell mud)	5	Lepto-V	13/34
Macroalgae- Fleshy+Calcareous	12	O. rob	2/2/12
Turf- algae+cyanobacteria (circle all: g r b)	52	Lepto-h	13
Encrusting Red Algae	4	Carijoa	4/1/1/1
Sponge	8	Carijoa	1/9/1/1
Hydroid	5	O. rob	1/1/5
Octocoral	2	Tridemnum	6/8
Stony Coral	2	Carijoa	2/4/1
Tunicate	6	Carijoa	4/1/1
Bare Hard Substrate	2	O. rob	1/5/2
other-... Annelid	1	Carijoa	2

Total Must = 100%

Standard Abbreviations: **Macroalgae: Pool to Genus = Genu or Genus;** Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..
and abbreviation formats **Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex...** except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Ps
Stony Coral: Genus species of each colony = G spe: A cer, A age, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S ir
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

O.rob recruit onto Surface of Colony (2) ... I/over seen ... like this

Quad Label: 50

Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12	Sarg	3
Max Sediment Depth (cm)	1	Amphiroa	3
Sessile Benthos...	% Cover	Lk Grac	3
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous	10	Lepto-h	1
Turf- algae+cyanobacteria (circle all: g r b) 10	67	Titanideum octo	28
Encrusting Red Algae	5	Carijua	8
Sponge	5	O.rob	3
Hydroid	1	Lepto-v	42
Octocoral	32	Carijoa	16
Stony Coral	1	Carijoa	3
Tunicate	3	Carijoa	3
Bare Hard Substrate	2	O.rob	3
other-...	2	Carijoa	4/6/3
	2		

Total Must = 100%

Quad Label: 175

Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Grac	3
Max Sediment Depth (cm)	2	Sarg	1
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	35	Lepto-V	29
Macroalgae- Fleshy+Calcareous	5	Carijoa	8/8
Turf- algae+cyanobacteria (circle all: g r b) 15	39	Titanideum octo	9
Encrusting Red Algae	3	Carijoa	3/4
Sponge	5		63
Hydroid	2	Lepto-V	5
Octocoral	2	Titanideum octo	17
Stony Coral	1	Titanideum octo	5
Tunicate	4		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid			

Total Must = 100%

Quad Label: 275

Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Sarg	4
Max Sediment Depth (cm)	1	Grac	5
Sessile Benthos...	% Cover	Amphiroa	1
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous	1	O.rob	3
Turf- algae+cyanobacteria (circle all: g r b) 20	41	Lepto-V	32
Encrusting Red Algae	9	Carijoa	2
Sponge	4		
Hydroid		Lepto-v	
Octocoral	3		
Stony Coral	1	O.rob	3
Tunicate	10	O.rob	3
Bare Hard Substrate	1		
other-... Annelid	32		
Bryoz			

Total Must = 100%

Quad Label: 425

Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Grac	30
Max Sediment Depth (cm)	1	Sarg	1
Sessile Benthos...	% Cover	Lepto-V	21
Sediment- (circle all: sand shell mud)	2	Lepto-V	30
Macroalgae- Fleshy+Calcareous	32	O.rob	9
Turf- algae+cyanobacteria (circle all: g r b) 20	42	Carijoa	8/2
Encrusting Red Algae	5		2/2
Sponge	1	Carijoa	2/3/11
Hydroid	2	O.rob	1
Octocoral	1		
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	1		
other-... Bryoz	2		
Annelid	1		

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad Label: ◯ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	-0	Lvira	H
Max Sediment Depth (cm)	4	Orob Cox	I
Sessile Benthos...	**% Cover**	C.rob	
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	1		4
Turf- algae+cyanobacteria (circle all: g r b)	5-7	Cari	I
Encrusting Red Algae	2		
Sponge	2		
Hydroid	1		
Octocoral	2		
Stony Coral	8		
Tunicate	3		
Bare Hard Substrate	2		
other-...	1		
	1	Orud	I

Total Must = 100%

287

Quad Label: ⌷ 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	23	Cari	2
Max Sediment Depth (cm)	9	Lvira	2
Sessile Benthos...	**% Cover**	C.rob	I
Sediment- (circle all: sand shell mud)	14	Orob	2
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	2		
Bare Hard Substrate	1		
other-... worm	1		
bryo	1		

Total Must = 100%

288

Quad Label: ⌷ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20	Svira	
Max Sediment Depth (cm)	8	Cari	I
Sessile Benthos...	**% Cover**	Orob	2
Sediment- (circle all: sand shell mud)	70	O	I
Macroalgae- Fleshy+Calcareous	2	Oick	4
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge			
Hydroid	O		
Octocoral			
Stony Coral	1		
Tunicate	-		
Bare Hard Substrate	3		
other-... worm	1		
bryo	1		

Total Must = 100%

289

Quad Label: 7.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% c. or max size (cm)
Max Relief (cm)	10	Cri	5,8,23
Max Sediment Depth (cm)	4	Lvir3	12,12
Sessile Benthos...	**% Cover**	Trai	7
Sediment- (circle all: sand shell mud)	105	Orob 45x	I
Macroalgae- Fleshy+Calcareous	1	Orob	2
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	2		
Sponge	2		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	4		
Bare Hard Substrate	3		
other-... worm	1		
bryo	2		

Total Must = 100%

290

Standard Abbreviations:
and abbreviation formats

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Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S In
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad (upper left)

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Tridemnum	6
Max Sediment Depth (cm)	11	Iridemum	4
Sessile Benthos...	**% Cover**	Oculina (Fluid)	
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... Worm	1		

Total Must = 100%

Quad (upper right)

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	18		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad (lower left)

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad (lower right)

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Iridem	3
Max Sediment Depth (cm)	4	Iridem	26
Sessile Benthos...	**% Cover**	Oculin	4
Sediment- (circle all: sand shell mud)	50	ll	5
Macroalgae- Fleshy+Calcareous	1	ll	2
Turf- algae+cyanobacteria (circle all: g r b)	5	ll	34
Encrusting Red Algae	2	ll	5
Sponge	1	ll	3
Hydroid	1	ll	34
Octocoral	2		
Stony Coral	15		
Tunicate	1		
Bare Hard Substrate	19		
other-... Worm	1		
Bruoz	1	DICTYOTA	

Total Must = 100%

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
and abbreviation formats Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name

Date 8-3. 0'.   **Site Name / Transect Name**

Data Collector CMS   **Data Entry**

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	C		
Max Sediment Depth (cm)	17		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	1 cc		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	C		
Max Sediment Depth (cm)	2C		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	O		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	Tridemnum	5
Max Sediment Depth (cm)	7	Leptogorg	42
Sessile Benthos...	**% Cover**	Oallina	4
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	O		
Turf- algae+cyanobacteria (circle all: g b)	1		
Encrusting Red Algae	O		
Sponge	1		
Hydroid	O		
Octocoral	1		
Stony Coral	1		
Tunicate	O		
Bare Hard Substrate	O		
other-... WORM	1		
BRYOZ	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Papt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P eme, O dif, S rad, S sid, S bou, S hya, S int,
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name

Site Name / Transect Name   TS 11

Date

Data Collector

Data Entry

Quad Label: 37.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 12		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

(left margin: 291)

Quad Label: 35 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 19		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad Label: 32.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 12		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous 0		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

(left margin: 301)

Quad Label: 30 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 20		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

(left margin: 302)

Standard Abbreviations:
and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg,
Octocoral: Genus of each colony = Genu: Gom, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psr
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S in
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore sp., Seagrass, Zoanthid.

Project Name N. Topsail   **Site Name / Transect Name**

Date 8-30-06   **Data Collector** FB   **Data Entry**

Quad Label: 47.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 42.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 40 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% co or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	20		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: **Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasva, Dasycladus, Grac, Hali, Hypn, Sarg...**
and abbreviation formats **Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl**
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name NTC, NC   **Site Name / Transect Name** 1512

Date _ _ -12-06   **Data Collector** NC   **Data Entry**

Quad Label: 0 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	O. dff 12×	1cm
Max Sediment Depth (cm)	4	Can	1
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	1		
Bare Hard Substrate	5		
other-...	1		
	1		
Total Must = 100%			

Quad Label: 2.5 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	96		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...	1		
Total Must = 100%			

Quad Label: 5 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	—		
Max Sediment Depth (cm)	12		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...	1		
Total Must = 100%			

Quad Label: 7.5 / Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	—		
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			
Total Must = 100%			

Standard Abbreviations:
and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaure=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector** | **Data Entry**

Quad Label: _10_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	—		
Max Sediment Depth (cm)	15		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations:
and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codl, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int,.
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepore sp., Seagrass, Zoanthid.

Quad Label: 1.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	
Max Sediment Depth (cm)	19	
Sessile Benthos...	% Cover	
Sediment- (circle all: sand shell mud)	100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

320

Quad Label: 5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	
Max Sediment Depth (cm)	10	
Sessile Benthos...	% Cover	
Sediment- (circle all: sand shell mud)	100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad Label: 12.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	
Max Sediment Depth (cm)	12	
Sessile Benthos...	% Cover	
Sediment- (circle all: sand shell mud)	100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

322

Total Must = 100%

Quad Label: Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		
Max Sediment Depth (cm)		
Sessile Benthos...	% Cover	
Sediment- (circle all: sand shell mud)		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra. Bryopsis. Brvothamnion. Caul. Codi. Dasva. Dasvcladus. Grac. Hali. Hypn. Sera..
Octocoral: Genus of each colony = Genu: Gora. Lept. Plex... except Pseudopterogorgia=Papt. Plexaurella=Plla. Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer. A aga. C nat. M ann. M cav. P ame. O dif. S rad. S sid. S bou. S hva. S int
Coral condition: W=white disease(s). O=other disease(s). B=bleaching. Coral Stress Index # 0 1 2 3
Other- includes: Anemone. Annelid-sessile. Barnacle. Bivalve. Brvozoan. Millepora sp.. Seagrass. Zoanthid.

Project Name		Site Name / Transect Name	
Date		**Data Collector**	**Data Entry**

Quad Label: 21.5	List macroalgae Genus %	% cover		**Quad Label:** 25	List macroalgae Genus %	% cover
Sample Name or #	List every coral colony ~and coral condition(s)	or max size (cm)		**Sample Name or #**	List every coral colony ~and coral condition(s)	or max size (cm)
Max Relief (cm)	(circled)			Max Relief (cm)	0	
Max Sediment Depth (cm)	15			Max Sediment Depth (cm)	14	
Sessile Benthos...	**% Cover**			**Sessile Benthos...**	**% Cover**	
Sediment- (circle all: sand shell mud)	100			Sediment- (circle all: sand shell mud)	100	
Macroalgae- Fleshy+Calcareous				Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)				Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae				Encrusting Red Algae		
Sponge				Sponge		
Hydroid				Hydroid		
Octocoral				Octocoral		
Stony Coral				Stony Coral		
Tunicate				Tunicate		
Bare Hard Substrate				Bare Hard Substrate		
other-...				other-...		
Total Must = 100%				Total Must = 100%		

Quad Label: 22.5	List macroalgae Genus %	% cover		**Quad Label:** 20	List macroalgae Genus %	% co
Sample Name or #	List every coral colony ~and coral condition(s)	or max size (cm)		**Sample Name or #**	List every coral colony ~and coral condition(s)	or ma. (cm)
Max Relief (cm)	0			Max Relief (cm)	0	
Max Sediment Depth (cm)	11			Max Sediment Depth (cm)	13	
Sessile Benthos...	**% Cover**			**Sessile Benthos...**	**% Cover**	
Sediment- (circle all: sand shell mud)	100			Sediment- (circle all: sand shell mud)	100	
Macroalgae- Fleshy+Calcareous	1			Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)				Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae				Encrusting Red Algae		
Sponge				Sponge		
Hydroid				Hydroid		
Octocoral				Octocoral		
Stony Coral				Stony Coral		
Tunicate				Tunicate		
Bare Hard Substrate				Bare Hard Substrate		
other-...				other-...		
Total Must = 100%				Total Must = 100%		

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codl, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int,
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Box crab

Project Name N. Topsail **Site Name / Transect Name** TS12
Date 8·30·06 **Data Collector** CPR **Data Entry**

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	11		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

307

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	11		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	00		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

308

Quad Label: 42.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	9		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

309

Quad Label: 40 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	11		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

310

Standard Abbreviations: **Macroalgae:** Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
and abbreviation formats **Octocoral:** Genus of each colony = Genu: Gor, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Psp
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Project Name		Site Name / Transect Name	
Date		Data Collector	Data Entry

Quad Label: 37.5 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

311

Quad Label: 35 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

313

Quad Label: 32.5 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	11		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

327

Quad Label: 30 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% co or max size (cm)
Max Relief (cm)	O		
Max Sediment Depth (cm)	12		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

314

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Serp...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int..
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- Includes: Anemone, Annelid-sessile, Barnacle, Bivalve, Bryozoan, Millepora sp., Seagrass, Zoanthid.

Quad Label: Sample Name or # ※0		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

D:12

Quad Label: Sample Name or # ※5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)			
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 7.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid			
Octocoral	0		
Stony Coral	1	Oculina ras	4 x8
Tunicate	0		
Bare Hard Substrate	86		
other-... Bryo	12		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name		Site Name / Transect Name	
Date 10/21/8		Data Collector	

ID: 13

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13	Dichyote	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: (g) (r) (b))	1		
Encrusting Red Algae	0		
Sponge			
Hydroid	0	Ocumerob 4 x3	
Octocoral	0		
Stony Coral			
Tunicate			
Bare Hard Substrate	84		
other-... BRYO SESS_um	1		

Total Must = 100%

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand (shell) (mud))	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r) (b))	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0	Gauline rub	1cm x5
Bare Hard Substrate	93		
other-... crmtd	5		

Total Must = 100%

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	7		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate		Gauline rub	1cm de
Bare Hard Substrate	7		
other-...			

Total Must = 100%

Project Name	Site Name / Transect Name
Date	Data Collector

Quad Label: 20
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	8		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	19		
other-...			

Total Must = 100%

Quad Label: 22.5
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sediment- (circle all: sand shell mud)	73		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	25		
other-... Vermitid	2		

Total Must = 100%

Quad Label:
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex.., except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name	Site Name / Transect Name
Date	Data Collector

Quad Label: 2-35
Sample Name or #:

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	6		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...	3		

Total Must = 100%

Quad Label: 24
Sample Name or #:

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	16	(?)	
Max Sediment Depth (cm)	0	Dictyota	1
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	1	Oculina robusta	1
Tunicate	2		
Bare Hard Substrate	48		
other-... worm	25		
bryozoan	1		

Total Must = 100%

Quad Label:
Sample Name or #:

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:
Sample Name or #:

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate	2		
Bare Hard Substrate			
other-... bryo			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach **Site Name / Transect Name** TS5

Date 10/21/05 **Data Collector** AD

Quad Label: 375 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	75		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	3		
other-... Worm	20		

Total Must = 100%

Quad Label: 35 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	2		
other-... Worm	2		

Total Must = 100%

Quad Label: 325 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	45		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	23		
other-... Worm	30		

Total Must = 100%

Quad Label: 30 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	2	Oculina robusta	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	7		
other-... Worm	3		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topail Beach **Site Name / Transect Name** TS5

Date 10/21/05   **Data Collector** AD

/

Quad Label: 475 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
..ax Relief (cm)	0		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 45 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	20		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r) (b))	3		
Encrusting Red Algae	0		
Sponge	2		
Hydroid	0	Lepto. sp	8 dead
Octocoral	0	Aulinop	1
Stony Coral	1		
Tunicate	5		
Bare Hard Substrate	74		
other-...			

Total Must = 100%

Quad Label: 425 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad Label: 40 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	16		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	35		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) (r) (b))	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	22		
other-...Worm	40		

Total Must = 100%

tandard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg....
.nd abbreviation formats   Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterpgorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB   **Site Name / Transect Name** T55

Date 10/21/05   **Data Collector** JD

Quad Label: 57.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment (circle all: sand shell mud)	83		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r) (b))	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	15		
other-...			

Total Must = 100%

Quad Label: 55 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11	Dictyota	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g (r) (b))	2		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0	O. robusta	1
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	83		
other-... Worm	2		

Total Must = 100%

Quad Label: 52.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: (g) (r) (b))	10	O. robusta	1
Encrusting Red Algae	0		
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	84		
other-...			

Total Must = 100%

Quad Label: 50 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment (circle all: sand shell mud)	91		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g (r) (b))	2		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other- bryozoan	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex..., except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C.nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S inl...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad 1 (top left)

Quad Label: 0
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 9		
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad 2 (top right)

Quad Label: 2.5
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	10		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad 3 (bottom left)

Quad Label: 5
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	25		
Max Sediment Depth (cm)	5		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate			
Bare Hard Substrate	20		
other-...	0		

Total Must = 100%

Quad 4 (bottom right)

Quad Label: 7.5
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6 2		
Max Sediment Depth (cm)			
Sediment- (circle all: sand shell mud)	90		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	5		
other-...			

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N Topsail Beach   **Site Name / Transect Name**

Date 10/21/05   **Data Collector**

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-...			

Total Must = 100%

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	88		
other-...			

Total Must = 100%

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	22		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	92		
other-...			

Total Must = 100%

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	30		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	59		
other-... 31)w2	1		

Total Must = 100%

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
and abbreviation formats   Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex., except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: Sample Name or # _20_

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-... Sesurm	3		

Total Must = 100%

Quad Label: Sample Name or # _22.5_

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	6		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # _25_

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	54		
Encrusting Red Algae			
Sponge	1		
Hydroid	5		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	5		
other-... Sesurm	20		

Total Must = 100%

Quad Label: Sample Name or # _27.5_

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14	Ocul msp robust	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	39		
other-... Sesurm	5		

Total Must = 100%

Project Name _N. Topsail Beach_   Site Name / Transect Name _TS 6_

Date _10/21/05_   Data Collector _RB_

Quad Label: _30_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand) shell mud)	35		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	20		
Encrusting Red Algae	1		
Sponge	1		
Hydroid	2		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	30		
other-... _Sesuvm_	10		
Total Must = 100%			

Quad Label: _32.5_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	20		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand) shell mud)	75		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae			
Sponge	3		
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	14		
other-... _Sesuvm_	2		
Total Must = 100%			

Quad Label: _35_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g (b))	2		
Encrusting Red Algae			
Sponge			
Hydroid	1		
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	35		
other-...			
Total Must = 100%			

Quad Label: _37.5_ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	_telesto_	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	85		
Encrusting Red Algae			
Sponge	4		
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	10		
other-...			
Total Must = 100%			

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad 1

Quad Label: UU   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	3		
Sediment- (circle all: sand shell mud)	15		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	27		
Encrusting Red Algae			
Sponge	1		
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	45		
other-... Fls mm	10		
Bryoz	1		

Total Must = 100%

Quad 2

Quad Label: 40.5   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocl/ina sub	5
Max Sediment Depth (cm)	0	leptu vivg	14
Sediment- (circle all: sand shell mud)	0	leptu hebrs	7
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae			
Sponge	10		
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate	58		
other-...			

Total Must = 100%

Quad 3

Quad Label: 45   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	35	B savlgyk MM	5
Max Sediment Depth (cm)	0	lepto hvber	10
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	5		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae			
Sponge	3		
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate	60		
Bare Hard Substrate	88		
other-... Bryoz	10+5		

Total Must = 100%

Quad 4

Quad Label: 2/75   **Sample Name or #**

Sessile Benthos...	% Cover	List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	30	Grac	1
Max Sediment Depth (cm)	0		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	3		
Sponge	3		
Hydroid	10		
Octocoral			
Stony Coral			
Tunicate	1		
Bare Hard Substrate	57		
other-... Bryoz	1		
Ses mm	10		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad 1

Quad Label: Sample Name or # 50		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	96 99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	1		
other-...			

Total Must = 100%

Quad 2

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Oculina r.	1
Max Sediment Depth (cm)	3	Oculina r.	1
Sessile Benthos...	% Cover	Telesto	4cm + 2
Sediment- (circle all: sand shell mud)	40	Dicty	1
Macroalgae- Fleshy+Calcareous	1	Oculya r.	1
Turf- algae+cyanobacteria (circle all: g r b)	52		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral	1		
Tunicate			
Bare Hard Substrate			
other-... Ses mm	5		

Total Must = 100%

Quad 3

Quad Label: Sample Name or # 55		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	7		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	98		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	2		
other-...			

Total Must = 100%

Quad 4

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	97		
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: 140 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	10		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	10		
other-... Vermit	80		

Total Must = 100%

Quad Label: 175 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell (mud))	50		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	50		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	80		
other-... Vermit	10		

Total Must = 100%

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) shell (mud))	40		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	10		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral			
Tunicate	0		
Bare Hard Substrate	30		
other-... Vermit	20		

Total Must = 100%

Quad Label: 125 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) shell (mud))	70		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae	0		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	10		
other-... Vermit	15		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach   **Site Name / Transect Name**   EH

Date 10/21/05   **Data Collector**

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	89		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	10		
other-...			
Total Must = 100%			

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-...			
Total Must = 100%			

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0	Oculina db	<1cm x4
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	20		
other-... Sess. ann.	8		
Total Must = 100%			

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	9		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			
Total Must = 100%			

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N Topsail Beach   **Site Name / Transect Name** TS7

Date 10/21/05   **Data Collector** EH

ID: 213

Quad Label: 30 Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	C		
Stony Coral	1		
Tunicate	0	Oculina rob ~1cm 15	good
Bare Hard Substrate	48		
other-... Vermit-11c	20		

Total Must = 100%

ID: 214

Quad Label: 32.5 Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0	Oculina on <1cm	950
Bare Hard Substrate	44		
other-... Vermtid	25		

Total Must = 100%

ID: 215

Quad Label: 35 Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	30		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0	Oculina rob <1cm	
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	57		
other-... Bryo	1		
Vermit	10		

Total Must = 100%

Quad Label: 37.5 Sample Name or #	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12		
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	3		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	75		
other-... Bryo	1		
Vermit	10		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg..

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB   **Site Name / Transect Name** TS7

Date 10/21/05   **Data Collector** AD

Quad Label: 78 Sample Name or #	8	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)			
Sessile Benthos…	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	3		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae			
Sponge	1		
Hydroid	0	2 ulinas Tox3	1
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	61		
other-… Worm	10		
Total Must = 100%			

Quad Label: 45 Sample Name or #	13	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	1		
Sessile Benthos…	**% Cover**		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	20		
Encrusting Red Algae	4		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	60		
other-… Worm	10		
Total Must = 100%			

Quad Label: 42,6 Sample Name or #	10	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	1		
Sessile Benthos…	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	10		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	52		
other-… Worm	25		
Total Must = 100%			

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos…	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-…			
Total Must = 100%			

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

and abbreviation formats   Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach   **Site Name / Transect Name**

Date 10/21/05   **Data Collector** AD

Quad Label: 57.5 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	15		
Sponge	0	Oculina sp x4	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	64		
other-...Worm	5		

Total Must = 100%

Quad Label: 55 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	25		
Encrusting Red Algae	4	Oculina lodu	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	61		
other-...Worm	5		

Total Must = 100%

Quad Label: 52.5 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	30		
Sponge	0	O. robusta	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	13		
other-...Worm	40		
bryozoan	1		

Total Must = 100%

Quad Label: 50 **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	50		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	15		
Encrusting Red Algae	5		
Sponge	0	Oculina robusta x2	1
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	24		
other-... Worm	5		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching. Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N. Topsail Beach   **Site Name / Transect Name**

Date 10/21/05   **Data Collector**   RB

Quad Label: 0 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	2		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	93		
other-...			

Total Must = 100%

Quad Label: 2.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	30		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	65		
other-... SPS worm	5		

Total Must = 100%

Quad Label: 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	35		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	60		
other-... SPS worm	5		

Total Must = 100%

Quad Label: 7.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae	1		
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate	94		
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: A		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	4	Ocul mr	1cm R3
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10 1		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	88		
other-...			

Total Must = 100%

Quad Label:		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	4	Ocul mc n	1cm
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	10 3		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	87		
other-...			

Total Must = 100%

Quad Label: 15		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	2	Ocul mc	1cm 3
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	40		
Encrusting Red Algae	1		
Sponge	2		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	5		
other-... SPS	5		

Total Must = 100%

Quad Label: 17.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)
Sample Name or #			
Max Relief (cm)	4	Ocul m	1cm S
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	84 3		
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate	10		
Bare Hard Substrate	2		
other-... SPS			

Total Must = 100%

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
and abbreviation formats   Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Ocu/Bir r. 1cm²	
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all; sand shell mud)	50		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	31		
Encrusting Red Algae	12		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	3		
other-... Sl5 worm	5		

Total Must = 100%

Quad Label: 225 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocu/Ar r.	1cm
Max Sediment Depth (cm)	2		
Sessile Benthos...	**% Cover**		
Sediment- (circle all; sand shell mud)	63		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	26		
Encrusting Red Algae	2		
Sponge	2		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... Sl5 worm	3		

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	Ocu/ihr r.	1
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all; sand shell mud)	69		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	20		
other-...			

Total Must = 100%

Quad Label: 275 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocu/As r.	1cm3
Max Sediment Depth (cm)	1		
Sessile Benthos...	**% Cover**		
Sediment- (circle all; sand shell mud)	5		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	82		
Encrusting Red Algae	3		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	6		
other-... Bryoz	1		
Sl5 worm	3		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name	NTB	Site Name / Transect Name	TS8
Date	10/21/05	Data Collector	RB

Quad Label: 30 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Ocvline	1cm/3
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	59		
Encrusting Red Algae	3		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1∪		
other-... Ses wm	1		

Total Must = 100%

Quad Label: 32.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	Ocvlvg	1cm/9
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	10		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	64		
Encrusting Red Algae	10		
Sponge			
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1∪		
other-... SPS worm	3		

Total Must = 100%

Quad Label: 35 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Ocvlmc	1cm/3
Max Sediment Depth (cm)	1		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	68		
Encrusting Red Algae	1		
Sponge	3		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	1		
other-... Bryoz	1		

Total Must = 100%

Quad Label: 37.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7	Ocvlvg	1cm/3
Max Sediment Depth (cm)	0		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	75		
Encrusting Red Algae	10		
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	10		
other-... Ses worm	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: 40 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
max Relief (cm) 6	Oculina	1cm x3
Max Sediment Depth (cm) 0		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) C		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r (b)) 91		
Encrusting Red Algae 2		
Sponge 4		
Hydroid		
Octocoral		
Stony Coral 1		
Tunicate		
Bare Hard Substrate 1		
other-... SOS nm 1		
Total Must = 100%		

Quad Label: X2.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 5	Oculina	1cm x 2
Max Sediment Depth (cm) 3		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 15		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r (b)) 77		
Encrusting Red Algae 5		
Sponge		
Hydroid 1		
Octocoral		
Stony Coral 1		
Tunicate		
Bare Hard Substrate		
other-... S3 nm 1		
Total Must = 100%		

Quad Label: 45 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 8	Oculina	1cm x4
Max Sediment Depth (cm) 0		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 0		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r (b)) 74		
Encrusting Red Algae 8		
Sponge 1		
Hydroid		
Octocoral		
Stony Coral 1		
Tunicate		
Bare Hard Substrate 10		
other-... SOS with 2		
Total Must = 100%		

Quad Label: 47.5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 6	Oculina	1cm
Max Sediment Depth (cm) 0		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 0		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r (b)) 85		
Encrusting Red Algae 10		
Sponge 1		
Hydroid		
Octocoral		
Stony Coral 1		
Tunicate		
Bare Hard Substrate 3		
other-....		
Total Must = 100%		

tandard Abbreviations:
nd abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB   **Site Name / Transect Name** TS 8

Date 10-21-05   **Data Collector** RB

Quad Label: Sample Name or # 5V		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	6	Oculina r.	1cm X 18
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	69		
Encrusting Red Algae	10		
Sponge	10		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	0		
other-... Ses mm	10		

Total Must = 100%

Quad Label: Sample Name or # 52.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	Oculina r.	1cm/.2
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	84		
Encrusting Red Algae	3		
Sponge	5		
Hydroid			
Octocoral			
Stony Coral	1		
Tunicate			
Bare Hard Substrate	3		
other-... Sls mm	4		

Total Must = 100%

Quad Label: Sample Name or # 55		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	Oculina r	3
Max Sediment Depth (cm)	0	Oculina r.	2
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r (b))	35		
Encrusting Red Algae	20		
Sponge	5		
Hydroid			
Octocoral			
Stony Coral	2		
Tunicate			
Bare Hard Substrate	35		
other-...			

Total Must = 100%

Quad Label: Sample Name or # 57.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8	telesto	1
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	0		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r (b))	83		
Encrusting Red Algae	5		
Sponge	5		
Hydroid	1		
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate	3		
other-... Sls mm	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.,
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name ITB   **Site Name / Transect Name** BA1 Transect

Date 0-20-05   **Data Collector** EH

ID: 49

Quad Label: ◯ Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	cut	
Max Sediment Depth (cm)	4	determined bryozoan	
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		Hoal
Sponge	1	Outline cm /1cm	
Hydroid	1	Bryo	
Octocoral	5	Lepto -	34.
Stony Coral	1	Lepto	20
Tunicate	0	Lepto	150m
Bare Hard Substrate	4	Lepto	49cm
other-... Vermitid	3	Lepto	30
	1	Lepto	38

Total Must = 100%

ID: 50

Quad Label: Sample Name or # 2.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	88		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0	Lepto hebes	60cm
Hydroid	0	Branching H4o	10cm
Octocoral	4	Purple cat	10
Stony Coral	1	Culine rth x 5 <1cm	
Tunicate	0	Lepto	50
Bare Hard Substrate	1	Lepto	30
other-... Vermitid	3	Lepto	19 -
Bryo	2		

Total Must = 100%

Titande frame

degun pa desro

ID: 51

Quad Label: 5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Gelidic	1
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	30		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	3	Oulina x5 7	7.5
Stony Coral	4	Lepto	35
Tunicate	0	Lepto	30
Bare Hard Substrate	51	Lepto	40
other-... Vermitid	7	Lepto	25
Bryo	1		

Total Must = 100%

ID: 52

Quad Label: 7.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13		
Max Sediment Depth (cm)	8		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0	Oulina sp <1cm x10	
Bare Hard Substrate	0	(1 bleached)	
other-... Vermitid	1		
Bryo	1		

Total Must = 100%

Black station

Project Name NTB **Site Name / Transect Name** BA 1

Date 10-20-05 **Data Collector** EH

10:53

Quad Label: Sample Name or #	10	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	0		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	94 73		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge	0		
Hydroid	0		
Octocoral	1	Caulmra r. < 1 cm x 1	
Stony Coral	1	~~Ofloge bili < 1 cm~~	
Tunicate	0		
Bare Hard Substrate	1		
other-... Vimta	1		
Bryo	1		

Total Must = 100%

10:54

Quad Label: Sample Name or #	12.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	only → determined to be bryozoan	1
Max Sediment Depth (cm)	10		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	8 95		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1	Caulmr r. < 1 cm	
Tunicate	0	Casunnr. < 1 x 3	
Bare Hard Substrate	1	2 poor health	
other-...			
bryozoan	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

10/20/05

NC

BA1

Project Name NTB   **Site Name / Transect Name**

Date 10/20/05   **Data Collector** RB

Quad Label: M.5 / **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 7	lepto	4
Max Sediment Depth (cm)		lepto	05
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	97	Dicty	1
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: 15 / **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	lepto	52
Max Sediment Depth (cm)	5	lepto	52
Sessile Benthos...	**% Cover**	lepto	30 cm +
Sediment- (circle all: sand shell mud)	85 84 83		
Macroalgae- Fleshy+Calcareous	5	Dicty	3
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	31	Oculina r.	1cm+6
Sponge	2		
Hydroid	31		
Octocoral	4		
Stony Coral	31		
Tunicate	0		
Bare Hard Substrate	0		
other-... Bryo Ses worm	1 / 1		

Total Must = 100%

Quad Label: / **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: / **Sample Name or #**		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Pigfish

Project Name   **Site Name / Transect Name**

Date   **Data Collector**

Quad Label: 27.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 25 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	15		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 20 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	2	lepto	22
Max Sediment Depth (cm)	7	lepto	28
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-... Ses vel/in	1		

Total Must = 100%

Project Name	Site Name / Transect Name	
Date	Data Collector	

10/30/16

Quad 1 (top left)

Quad Label: Sample Name or # 37.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 19		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad 2 (top right)

Quad Label: Sample Name or # 35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 15		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad 3 (bottom left)

Quad Label: Sample Name or # 32.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0	lepto	33
Max Sediment Depth (cm) 17	lepto	50
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 98		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral 2		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad 4 (bottom right)

Quad Label: Sample Name or # 30	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0		
Max Sediment Depth (cm) 19		
Sessile Benthos... **% Cover**		
Sediment- (circle all: sand shell mud) 100		
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name | **Site Name / Transect Name**

Date | **Data Collector**

Quad Label: Sample Name or # 475		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	8		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) shell mud)	10		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 45		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	lepto	03
Max Sediment Depth (cm)	13		
Sessile Benthos...	**% Cover**		
Sediment- (circle all:(sand) shell mud)	99		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 42.5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	20		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 40		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	19		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Long Spine forgy

Project Name			Site Name / Transect Name	
Date	10/23/05		Data Collector	

Quad Label: 0/5
Sample Name or #

	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 35/6	Dixy Nav/x 7/1cuf#	
Max Sediment Depth (cm) 8/3	Dev/-nr. left V 1ln/ 2cm	

Sessile Benthos...	% Cover		
Sediment- (circle all: ⟨sand⟩ shell mud)	12/45		
Macroalgae- Fleshy+Calcareous	7/0		
Turf- algae+cyanobacteria (circle all: g r ⟨b⟩)	69/45		
Encrusting Red Algae	5/0		
Sponge	0/0		
Hydroid	4/0		
Octocoral	7/1		
Stony Coral	1/1		
Tunicate	2/0		
Bare Hard Substrate	10/0		
other-... 13/12	1/1		
Seagrass	7		

Total Must = 100%

Quad Label: 10/11
Sample Name or #

	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0/0		
Max Sediment Depth (cm) 13/13		

Sessile Benthos...	% Cover		
Sediment- (circle all: ⟨sand⟩ shell mud)	10/100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 20/25
Sample Name or #

	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0/0		
Max Sediment Depth (cm) 23/30		

Sessile Benthos...	% Cover		
Sediment- (circle all: ⟨sand⟩ shell mud)	100/100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 30/35
Sample Name or #

	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm) 0/0	lepto V	50
Max Sediment Depth (cm) 8/17	lept V	5

Sessile Benthos...	% Cover		
Sediment- (circle all: sand ⟨shell⟩ mud)	98/100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	2		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: **Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg**
and abbreviation formats **Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudoterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl**
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, *Millepora* sp., Mollusca-sessile, Seagrass, Zoanthid.

Atlantic Spadefish
Black sea bss

Quad Label:

Sample Name or #	40 /45	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 0		
Max Sediment Depth (cm)	23 / 16		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) shell mud)	110 / 20		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	23		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: (sand) shell mud)	20		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
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Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P'ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach   **Site Name / Transect Name**   BA2

Date 10/23/05   **Data Collector** AD   AD

Quad Label: 25

Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)
Max Relief (cm)	5	11			
Max Sediment Depth (cm)	6	2			
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	94	20			
Macroalgae- Fleshy+Calcareous	0	0			
Turf- algae+cyanobacteria (circle all: g (r) b)		5			
Encrusting Red Algae		1			
Sponge		1			
Hydroid	0	0			
Octocoral	0	0	O.R	ORx2	1
Stony Coral		1			
Tunicate	0	0			
Bare Hard Substrate					
other-...		10			

Total Must = 100%

Quad Label: 12.5

Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)
Max Relief (cm)	0	0			
Max Sediment Depth (cm)	18	15			
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	100	100			
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae					
Sponge					
Hydroid					
Octocoral					
Stony Coral					
Tunicate					
Bare Hard Substrate					
other-...					

Total Must = 100%

Quad Label: 22.5

Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)
Max Relief (cm)	0	1			
Max Sediment Depth (cm)	24	23			
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	100	100			
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae					
Sponge					
Hydroid					
Octocoral					
Stony Coral					
Tunicate					
Bare Hard Substrate					
other-...					

Total Must = 100%

Quad Label: 32.5

Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)		% cover or max size (cm)
Max Relief (cm)	0	0			
Max Sediment Depth (cm)	15	17			
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	100	100			
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)					
Encrusting Red Algae					
Sponge					
Hydroid					
Octocoral					
Stony Coral					
Tunicate					
Bare Hard Substrate					
other-...					

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name North Topsail Beach   **Site Name / Transect Name** BA 2

Date 10/23/05   **Data Collector** AD

<table>
<tr><th>Quad Label:
Sample Name or #</th><th colspan="2">425 41</th><th colspan="2">List macroalgae Genus %
List every coral colony
~and coral condition(s)</th><th>% cover
or max size
(cm)</th><th></th></tr>
<tr><td>Max Relief (cm)</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Max Sediment Depth (cm)</td><td>18</td><td>30</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sessile Benthos...</td><td colspan="2">% Cover</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sediment-
(circle all: sand shell mud)</td><td>100</td><td>100</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Macroalgae-
Fleshy+Calcareous</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Hydroid</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Stony Coral</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Bare Hard Substrate</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>other-...</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Total Must = 100%

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Sample Name or #</th><th></th><th></th><th colspan="2">List macroalgae Genus %
List every coral colony
~and coral condition(s)</th><th>% cover
or max size
(cm)</th><th></th></tr>
<tr><td>Max Relief (cm)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Max Sediment Depth (cm)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sessile Benthos...</td><td colspan="2">% Cover</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sediment-
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~and coral condition(s)</th><th>% cover
or max size
(cm)</th><th></th></tr>
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<tr><td>Max Sediment Depth (cm)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sessile Benthos...</td><td colspan="2">% Cover</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sediment-
(circle all: sand shell mud)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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List every coral colony
~and coral condition(s)</th><th>% cover
or max siz
(cm)</th><th></th></tr>
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<tr><td>Max Sediment Depth (cm)</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sessile Benthos...</td><td colspan="2">% Cover</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Sediment-
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Total Must = 100%

Standard Abbreviations: Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
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Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTD   **Site Name / Transect Name** RB   BRda

Date   **Data Collector**

Quad Label: 789		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	3	lepto	4
Max Sediment Depth (cm)	9	lepto	6
Sessile Benthos...	% Cover	Dicty	1
Sediment- (circle all: sand shell mud)	87 84	squiggle	2
Macroalgae- Fleshy+Calcareous	3	Oculver.	3
Turf- algae+cyanobacteria (circle all: g r (b))	3		
Encrusting Red Algae	0		
Sponge	0		
Hydroid			
Octocoral		Squiggly determined to be bryozoan	
Stony Coral	1		
Tunicate			
Bare Hard Substrate			
other-... Ses wm	1		
bryozoan	2		

Total Must = 100%

Quad Label: 5		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	0	Oculvar.	4
Max Sediment Depth (cm)	4	Oculvar.	4
Sessile Benthos...	% Cover	Diculver.	6
Sediment- (circle all: sand shell mud)	96	lepto V	20
Macroalgae- Fleshy+Calcareous	2	Dicty	2
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral	1		
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 25		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	5	Oculvar	1
Max Sediment Depth (cm)	7	Diculvar	1
Sessile Benthos...	% Cover	Oculver	15
Sediment- (circle all: sand shell mud)	83	lepto V	15
Macroalgae- Fleshy+Calcareous	0	lepto V	7
Turf- algae+cyanobacteria (circle all: g r (b))	15	lepto U	5
Encrusting Red Algae	0	Oculvar	7
Sponge	0		
Hydroid	0		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-...	0		

Total Must = 100%

Quad Label: 0		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Sample Name or #			
Max Relief (cm)	17	Oculvar.	3ck/6
Max Sediment Depth (cm)	5	Oculver.	lept 2
Sessile Benthos...	% Cover	lepto V	20
Sediment- (circle all: sand shell mud)	3	Dicty	8
Macroalgae- Fleshy+Calcareous	10		
Turf- algae+cyanobacteria (circle all: g r (b))	55		
Encrusting Red Algae	10		
Sponge	1		
Hydroid	2		
Octocoral	1		
Stony Coral	4		
Tunicate	3		
Bare Hard Substrate	10		
other-... Seswm	1		

Total Must = 100%

Standard Abbreviations: **Macroalgae: Pool to Genus = Genu or Genus:** Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
and abbreviation formats **Octocoral: Genus of each colony = Genu:** Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name	**Site Name / Transect Name**	
Date	**Data Collector**	EH

Quad Label: 41 1
Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	ʌ	0		
Max Sediment Depth (cm)	14	15		
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: 42.5/41
Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	0		
Max Sediment Depth (cm)	12	18		
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

ID: 101

Quad Label: 9/8
Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	0		
Max Sediment Depth (cm)	10	9		
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	100	100		
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				

Total Must = 100%

Quad Label: 31.5/30
Sample Name or #

			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1	0		
Max Sediment Depth (cm)	4	6		
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	85	99		
Macroalgae- Fleshy+Calcareous	0	0		
Turf- algae+cyanobacteria (circle all: g r b)	1	1		
Encrusting Red Algae	0	0		
Sponge	0	0	0 0b	1.9
Hydroid	1	0	0 0b	1x
Octocoral	0	0	0 0 0	1xx
Stony Coral	2	0		
Tunicate	0	0		
Bare Hard Substrate	11	0		
other-...				

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl.
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

did you start @ 5

ID: 105/106   120

Quad Label: 275   **List macroalgae Genus %** / **List every coral colony ~and coral condition(s)** / **% cover or max size (cm)**

Sample Name or #

Max Relief (cm)	0	0			
Max Sediment Depth (cm)	5	4			
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	99	100			
Macroalgae- Fleshy+Calcareous					
Turf- algae+cyanobacteria (circle all: g r b)	1				
Encrusting Red Algae					
Sponge					
Hydroid					
Octocoral					
Stony Coral					
Tunicate					
Bare Hard Substrate					
other-...					

Total Must = 100%

Quad Label: 225
Sample Name or #

Max Relief (cm)	0	12	Doty	Doty	3	5
Max Sediment Depth (cm)	3	4	Doty	Dich	2	5
				Dasya		5
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)		25			
Macroalgae- Fleshy+Calcareous	5	20			
Turf- algae+cyanobacteria (circle all: g r b)	1	5			
Encrusting Red Algae	0	2			
Sponge	2	0	LR	N	
Hydroid	2	0	R	X	
Octocoral	0	2	OR	OR	1 4x34
Stony Coral	1	1	OR		
Tunicate	0	0	LL	30	
Bare Hard Substrate	0	40			
other- bryozoan	3	5	OR	6	

Total Must = 100%

ID: 107/108

Quad Label:
Sample Name or #

Max Relief (cm)	0	3	Dasya	1
Max Sediment Depth (cm)	18	4		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	90	12		
Macroalgae- Fleshy+Calcareous	0	2		
Turf- algae+cyanobacteria (circle all: g r b)	8	3		
Encrusting Red Algae	0	5	OR	4
Sponge	0	0	OR	15
Hydroid	0	0		
Octocoral	0	0	OR	1
Stony Coral	1	1		1
Tunicate	0	0		
Bare Hard Substrate	0	69		
other-... Ulva	1			
Bryo	1			

Total Must = 100%

Quad Label:
Sample Name or #

Max Relief (cm)	0	2	Dich	Dich	2	5
Max Sediment Depth (cm)	0	13	Doty		8	
Sessile Benthos...	**% Cover**				
Sediment- (circle all: sand shell mud)	Dasya	LR	2	4	
	0	15	OR	D	5
Macroalgae- Fleshy+Calcareous	6	5	CR D	7
Turf- algae+cyanobacteria (circle all: g r b)	30	40	LV	40
Encrusting Red Algae	1	4	CR	LR	4	18
Sponge	0	0	OR	OR	3	8
Hydroid	2	2	OR	OR	9	2
Octocoral	0	1	OR	10	2
Stony Coral	5	7	OR	5	1
Tunicate	0	0	OR	5	5
Bare Hard Substrate	5	25	OR D	4	2
other- Anemone	1		OR OR D	2x 5
Bryo	8	14	OR D	2

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarq...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

12'
0
NO
VIS.

Quad Label:

Sample Name or #   32-5/31-5

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 / 0		
Max Sediment Depth (cm)	10 / 23		
Sessile Benthos....	**% Cover**		
Sediment- (circle all: sand shell mud)	10 / 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:

Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg.
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name N/15
Date

O & 12.5
Not taken
No Visibility

Quad Label: 25/5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	
Max Relief (cm)	12/0	
Max Sediment Depth (cm)	11/4	
Sessile Benthos...	**% Cover**	
Sediment- (circle all: sand shell mud)	90/100	
Macroalgae- Fleshy+Calcareous	0	
Turf- algae+cyanobacteria (circle all: g r b)	1	
Encrusting Red Algae	0	
Sponge	0	
Hydroid	1	
Octocoral	0	
Stony Coral	1	0.5 x22 Pu/ob	1
Tunicate	0	0.5 pu/ob	3
Bare Hard Substrate	5		
other-... Wor	2		

Total Must = 100%

Quad Label: 15/10 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0/0	
Max Sediment Depth (cm)	5/5	
Sessile Benthos...	**% Cover**	
Sediment- (circle all: sand shell mud)	90/100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad Label: 15/1 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0/2	
Max Sediment Depth (cm)	70/15	
Sessile Benthos...	**% Cover**	
Sediment- (circle all: sand shell mud)	100/100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Quad Label: 225/5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0/0	
Max Sediment Depth (cm)	15/13	
Sessile Benthos...	**% Cover**	
Sediment- (circle all: sand shell mud)	100/100	
Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae		
Sponge		
Hydroid		
Octocoral		
Stony Coral		
Tunicate		
Bare Hard Substrate		
other-...		

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name	Site Name / Transect Name
Date	Data Collector

Quad Label: 45 40
Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0		
Max Sediment Depth (cm)	13 16		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 35 50
Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0		
Max Sediment Depth (cm)	19 13		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: 25 2
Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0		
Max Sediment Depth (cm)	14 13		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label:
Sample Name or #

		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0 0		
Max Sediment Depth (cm)	12 12		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100 100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

BA7

| Project Name | | Site Name / Transect Name | |
| Date | | Data Collector | |

ID: 131 / 32

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0	1	O rob	2x2
Max Sediment Depth (cm)	3	3	O rob	2
Sessile Benthos...	% Cover		O rob	2
Sediment- (circle all: sand shell mud)	90	85	84	O	3x2
Macroalgae Fleshy+Calcareous	0	2	O rob	4
Turf- algae+cyanobacteria (circle all: g r b)		3	O rob	5
Encrusting Red Algae	1	1	O rob	11
Sponge	0	3	O rob	3
Hydroid	0	1	O rob	5
Octocoral	1	2	Lepto	11
Stony Coral	0	2	Ocul	Lepto	12
Tunicate		0	Lepto H	7
Bare Hard Substrate	1	0	Lepto H	8
other- sess ann	0	1	Lept	24
bryozoan		1	Cotty	

Total Must = 100%

ID: 133 / 134

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3	2	Cotty	Dichy	
Max Sediment Depth (cm)	3	3	Cotty	8
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	88	87	Or	3x2
Macroalgae Fleshy+Calcareous	2	3	Or	4
Turf- algae+cyanobacteria (circle all: g r b)	1	1	Or	3
Encrusting Red Algae	1	1		2
Sponge	1	0	Or	OR	1	2
Hydroid	0	0	Ocul	OR	2	1x2
Octocoral	3	1	Ocu.r	LR	6	4
Stony Coral	3	1	Lepto H	Lepto V	4	38
Tunicate	1	1	Lepto		
Bare Hard Substrate	1	0	Lepto	Lepto H	6
other- sess ann		1	Lepto H	Lepto BR	6	9
BRYO	2	13		1

Total Must = 100%

ID: 135 / 36

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	10	Avraine Dichy	3
Max Sediment Depth (cm)	1	3	dichy	1
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	1	1		
Macroalgae Fleshy+Calcareous	3	4		
Turf- algae+cyanobacteria (circle all: g r b)	1	2		
Encrusting Red Algae	3	10		37
Sponge	63	2	OR	41
Hydroid	0	0		
Octocoral	1	5		43
Stony Coral	2	1		
Tunicate	0	0		30
Bare Hard Substrate	10	0		41
other-	3	5		

Total Must = 100%

ID: 137 / 138

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	6	Cotty Dichy	4
Max Sediment Depth (cm)	1	1		2
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	58	66	OR	4
Macroalgae Fleshy+Calcareous	3	0	OR B	2
Turf- algae+cyanobacteria (circle all: g r b)	1	1	OR	LV	48
Encrusting Red Algae	15	10	OR	2x2
Sponge	4	2	AR	OR	3
Hydroid	0	0	LR	AR	2
Octocoral	12	5	LP	OR	1
Stony Coral	1	3	LP	LV	2
Tunicate	0	0	OR	LH	5
Bare Hard Substrate	15	5	LR	OR	4x9
other- BYO	Bryo	X2	1	
Clams	sess ann	1	5	

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name			Site Name / Transect Name		
Date			**Data Collector**		

ID: 139

Quad 1

Quad Label: Sample Name or #		20	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		3	vd chy	1
Max Sediment Depth (cm)		1		
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)	85			
Macroalgae- Fleshy+Calcareous	2			
Turf- algae+cyanobacteria (circle all: g r b)			in	2
Encrusting Red Algae	10		Oil	3 x 2
Sponge	12.10		LV	4 x
Hydroid	2		LP	10
Octocoral	3		L P	4
Stony Coral	3		OR	2'x
Tunicate	1		UR-B	3
Bare Hard Substrate	25		OR	4x2
other-... Sessim	5		OR	5
Bry	1		OR	6
Total Must = 100%				

Quad 2

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)		1		
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				
Total Must = 100%				

Quad 3

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				
Total Must = 100%				

Quad 4

Quad Label: Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)				
Max Sediment Depth (cm)				
Sessile Benthos...	**% Cover**			
Sediment- (circle all: sand shell mud)				
Macroalgae- Fleshy+Calcareous				
Turf- algae+cyanobacteria (circle all: g r b)				
Encrusting Red Algae				
Sponge				
Hydroid				
Octocoral				
Stony Coral				
Tunicate				
Bare Hard Substrate				
other-...				
Total Must = 100%				

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla; Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NIB **Site Name / Transect Name** E → W BA+

Date 10/22/05 **Data Collector**

Quad Label: 475 / 45 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)			Quad Label: 105 / 40 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)		
Max Relief (cm)	8	10	Dicty Lepto v/W	3	63	Max Relief (cm)	4	6	lepto lepto v 23	56
Max Sediment Depth (cm)	1	2	lepto Lepto lob 38/7	30		Max Sediment Depth (cm)	3	2	lepto Oculn 10 1cm	
Sessile Benthos...	% Cover		lepto lepto v 8 3 16			Sessile Benthos...	% Cover		lepto Oculn 8x 2cm	
Sediment- sand (circle all: sand shell mud)	60	25	Oculn lepto v oculn lepto 7			Sediment- (circle all: sand shell mud)	60	30	lepto v lepto v 29 16	
Macroalgae- Fleshy+Calcareous	3	5	lepto v 20			Macroalgae- Fleshy+Calcareous	2	3	lepto v lepto v 4 7	
Turf- algae+cyanobacteria (circle all: g r (b))	30	61	Oculn 3			Turf- algae+cyanobacteria (circle all: g r (b))	32	57	oculn lepto h 3 7	
Encrusting Red Algae	2	0	oculn 1cm 7			Encrusting Red Algae	2	4	oculn Dich 1cm 3	
Sponge	1	1	Dicty 5			Sponge	0	1	Dicty 2	
Hydroid	0	0				Hydroid	0	1		
Octocoral	1	3				Octocoral	3	2		
Stony Coral		1				Stony Coral	1	1		
Tunicate	0	0				Tunicate	0	0		
Bare Hard Substrate	1	3				Bare Hard Substrate	0	1		
other- Bry sesmen	1	1				other-...	0			

Total Must = 100%

Total Must = 100%

Quad Label: 325 / 35 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)			Quad Label: 325 / 30 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	7	3	Oculn Oculn lepto 5		Max Relief (cm)	7	Oculn nb 4	
Max Sediment Depth (cm)	1	1	Oculn Oculn 3 3		Max Sediment Depth (cm)	0	Oculn nb 4	
Sessile Benthos...	% Cover		lepto h oculn 10 7		Sessile Benthos...	% Cover	Oculn nb 5	
Sediment- sand (circle all: sand shell mud)	30	15	lepto v Oculn 7 4		Sediment- (circle all: sand shell mud)	0	oculn nb 3	
Macroalgae- Fleshy+Calcareous	2	2	lepto v Oculn 16 5		Macroalgae- Fleshy+Calcareous	3	Oculn nb 9	
Turf- algae+cyanobacteria (circle all: g r (b))	58	75	lepto v Oculn 1cm 1cm		Turf- algae+cyanobacteria (circle all: g r (b))	87	Oculn 1	
Encrusting Red Algae	4	2	lepto v lepto h 2cm 7		Encrusting Red Algae	1	oculn 1	
Sponge	1	1	Dicty lepto v 2 13		Sponge	2	lepto h 27	
Hydroid	1	0	lepto v 1cm		Hydroid	1	lepto v 9	
Octocoral	2	2	lepto 7cm		Octocoral	2	lepto v 10	
Stony Coral	1	2	lepto v 90		Stony Coral	2	Dicty 7	
Tunicate	0	0	Dicty 1		Tunicate	1		
Bare Hard Substrate	0	0	sarg 1		Bare Hard Substrate	0	2	
other- sesmen Bryoz		1			other- ses men			

Total Must = 100%

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Do you want to start here, stretch the tape out and see how it looks?

Project Name		Site Name / Transect Name		AD
Date		Data Collector	075	

Quad 1 (top left)

Quad Label: (illegible) Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	2		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	87		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	2	lepto	7
Sponge	4	Lepto	16
Hydroid	0	O. robusta	5
Octocoral	1	O. robusta	2
Stony Coral	1	O. rubusta x2	4
Tunicate	1	O. robusta x5	1
Bare Hard Substrate	2	O. robusta x3	3
other-...Worm	1	O. rubusla	4

Total Must = 100%

Quad 2 (top right)

Quad Label: (illegible) Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	7		
Max Sediment Depth (cm)	3	dark red lepto	4
Sessile Benthos...	% Cover	purple Titanidium	9
Sediment- (circle all: sand shell mud)	88	purpu Titanidium white	6
Macroalgae- Fleshy+Calcareous	0	Lepto	22
Turf- algae+cyanobacteria (circle all: g r b)	2	Lepto	31
Encrusting Red Algae	1	lepto	39
Sponge	2	robusta x3	1
Hydroid	0	O. robusta	4
Octocoral	2	robusta x3	3
Stony Coral	1	O. robusta	2
Tunicate	1	O. robusta	5
Bare Hard Substrate	2	O. robusta	4
other-...Worm	1	O. robusta	7
		O. robusta	10

Total Must = 100%

Quad 3 (bottom left)

Quad Label: 75 Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5		
Max Sediment Depth (cm)	3	O. robusta x5	1
Sessile Benthos...	% Cover	dark red lepto	12
Sediment- (circle all: sand shell mud)	88	dark red lepto	11
Macroalgae- Fleshy+Calcareous	0	dark red lepto	4
Turf- algae+cyanobacteria (circle all: g r b)	1	dark red lepto	11
Encrusting Red Algae	2	dark red lepto	2
Sponge	2	Titanidium white	4
Hydroid	1	Titanideum purple	4
Octocoral	2	Titanidium	7
Stony Coral	1	Titanidium	4
Tunicate	0	Titanidium	9
Bare Hard Substrate	3	Titanidium	8
other-...	1	Titanidium	7
		Titanidium	3

Total Must = 100%

Quad 4 (bottom right)

Quad Label: 22.5 Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	3		
Max Sediment Depth (cm)	6		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	88		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1	Titanidium	3
Sponge	3	Purple lepto Titanidium	9
Hydroid	0	Purple lepto w/white belly Titanidum	15
Octocoral	1	lepto	52
Stony Coral	1	Oculina sp x3	2
Tunicate	1	Oculina sp x20	1
Bare Hard Substrate	2	Oculina sp x3	3
other-...200 W thred Worm	1		

Total Must = 100%

Standard Abbreviations: and abbreviation formats	Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
	Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Pila, Pseudoplexaura=Pspl
	Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
	Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
	Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

DIVE Flag

Project Name NTB   **Site Name / Transect Name** 3A 8

Date 10/33/05   **Data Collector** RB

Quad Label: 0 5 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: 10 15 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			Max Relief (cm)		
Max Sediment Depth (cm)			Max Sediment Depth (cm)		
Sessile Benthos...	**% Cover**		**Sessile Benthos...**	**% Cover**	
Sediment- (circle all: sand shell mud)			Sediment- (circle all: sand shell mud)		
Macroalgae- Fleshy+Calcareous			Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)			Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae			Encrusting Red Algae		
Sponge			Sponge		
Hydroid			Hydroid		
Octocoral			Octocoral		
Stony Coral			Stony Coral		
Tunicate			Tunicate		
Bare Hard Substrate			Bare Hard Substrate		
other-...			other-...		

Total Must = 100%   Total Must = 100%

Quad Label: Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	Quad Label: 30 Sample Name or #	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			Max Relief (cm)		
Max Sediment Depth (cm)			Max Sediment Depth (cm)		
Sessile Benthos...	**% Cover**		**Sessile Benthos...**	**% Cover**	
Sediment- (circle all: sand shell mud)			Sediment- (circle all: sand shell mud)		
Macroalgae- Fleshy+Calcareous			Macroalgae- Fleshy+Calcareous		
Turf- algae+cyanobacteria (circle all: g r b)			Turf- algae+cyanobacteria (circle all: g r b)		
Encrusting Red Algae			Encrusting Red Algae		
Sponge			Sponge		
Hydroid			Hydroid		
Octocoral			Octocoral		
Stony Coral			Stony Coral		
Tunicate			Tunicate		
Bare Hard Substrate			Bare Hard Substrate		
other-...			other-...		

Total Must = 100%   Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: **40** Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	*23*	*leptu*	*5*
Max Sediment Depth (cm)	*3*		*8*
Sessile Benthos...	**% Cover**		*22*
Sediment- (circle all: ⟨sand⟩ shell mud)	*94*		*19*
Macroalgae- Fleshy+Calcareous			*9*
Turf- algae+cyanobacteria (circle all: g r b)			*15*
Encrusting Red Algae			*3*
Sponge	*1*		
Hydroid			
Octocoral	*4*		
Stony Coral			
Tunicate			
Bare Hard Substrate	*1*		
other-...			

Total Must = 100%

Quad Label: **45** Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	*5*	*lepto V*	*13*
Max Sediment Depth (cm)	*1*		*19*
Sessile Benthos...	**% Cover**		*22*
Sediment- (circle all: ⟨sand⟩⟨shell⟩ mud)	*75*		*32*
Macroalgae- Fleshy+Calcareous	*5*		*8*
Turf- algae+cyanobacteria (circle all: g r ⟨b⟩)	*12*		*5*
Encrusting Red Algae		*leptio V*	*23*
Sponge		*Dirty*	*3*
Hydroid			
Octocoral	*5*		
Stony Coral			
Tunicate			
Bare Hard Substrate	*3*		
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations:
and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sard
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Project Name NTB **Site Name / Transect Name** BA8?

Date 10/23/05 **Data Collector** AD

Quad Label: 25 95 Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	4	0	Gorg Red Lept	18	8
Max Sediment Depth (cm)	3	4	Titanideum Titanideum	7	8
Sessile Benthos...	% Cover		Rhodia Rhodia		
Sediment (circle all: sand shell mud)	93	96	Titanideum	5	
Macroalgae- Fleshy+Calcareous	0	0	Titanideum	2	
Turf- algae+cyanobacteria (circle all: g r b)	1	1	Lepto	38	
Encrusting Red Algae	0	0	Lept Titanideum	16	
Sponge	0	0	Lepto	36	
Hydroid	0	0	Titanideum	7	
Octocoral	3	1	Titanideum	7	
Stony Coral	0	0	Lepto	24	
Tunicate	0	0	Titanideum	6	
Bare Hard Substrate	2	2	Titanideum	4	
other-...	0	0	Titanideum	10	

Total Must = 100%

Quad Label: 17.5 14 Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	0	0			
Max Sediment Depth (cm)	8	3	Lept Lepto	32	30
Sessile Benthos...	% Cover		Lept Lepto	37	24
Sediment (circle all: sand shell mud)	98	99	Lept Titanideum	40	3
Macroalgae- Fleshy+Calcareous	0	0			
Turf- algae+cyanobacteria (circle all: g r b)	0	0			
Encrusting Red Algae	0	0			
Sponge	0	0			
Hydroid	0	0			
Octocoral	2	1			
Stony Coral	0	0			
Tunicate	0	0			
Bare Hard Substrate	0	0			
other-...	0	0			

Total Must = 100%

Quad Label: 22.5 07 Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)	
Max Relief (cm)	0	0	Gorg	22	
Max Sediment Depth (cm)	3	3	Lepto	34	
Sessile Benthos...	% Cover		Lepto	36	
Sediment (circle all: sand shell mud)			Lepto	20	
Macroalgae- Fleshy+Calcareous	0	0	Titanideum	11	
Turf- algae+cyanobacteria (circle all: g r b)	0	0	Lepto	8	
Encrusting Red Algae	0	0	Titanideum	10	
Sponge	0	0			
Hydroid	0	0			
Octocoral					
Stony Coral	0	0			
Tunicate	0	0			
Bare Hard Substrate	0	0			
other-...	0	0			

Total Must = 100%

Quad Label: 32.5 83 Sample Name or #			List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max siz (cm)	
Max Relief (cm)	0	1	Didy	1	
Max Sediment Depth (cm)	4	10			
Sessile Benthos...	% Cover				
Sediment (circle all: sand shell mud)	97	44			
Macroalgae- Fleshy+Calcareous	0	1			
Turf- algae+cyanobacteria (circle all: g r b)	0	2			
Encrusting Red Algae	0	0			
Sponge	0	0			
Hydroid	0	0	Lept	32	
Octocoral	3	3			
Stony Coral	1	6	Lepto	35	
Tunicate	0	6	Lept	2	
Bare Hard Substrate	0	0			
other-...					

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspt
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid

Project Name   **Site Name / Transect Name**

Date   **Data Collector**

Quad Label: **425** Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)	4		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae			
Sponge	0	lepto V	12
Hydroid	0		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: **4K** Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	3		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	95		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-...			

Total Must = 100%

Quad Label: **475** Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4	Dicty	1
Max Sediment Depth (cm)	5		
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)	90		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae			
Sponge			
Hydroid	0		
Octocoral	0	lepto V	7
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	8		
other-... Bryo	1		

Total Must = 100%

Quad Label: Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)			
Max Sediment Depth (cm)			
Sessile Benthos...	**% Cover**		
Sediment- (circle all: sand shell mud)			
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Standard Abbreviations: and abbreviation formats
Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg;
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0, 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad 1

Quad Label:	Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4			
Max Sediment Depth (cm)	4			
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	95			
Macroalgae- Fleshy+Calcareous	2			
Turf- algae+cyanobacteria (circle all: g r b)	0			
Encrusting Red Algae	0			
Sponge	1			
Hydroid	0			
Octocoral	0			
Stony Coral	0			
Tunicate				
Bare Hard Substrate	1			
other-... Bryo Sessi	2			

Total Must = 100%

Quad 2

Quad Label: 25	Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		Ocul	
Max Sediment Depth (cm)	5		Cyto	10
Sessile Benthos...	% Cover		hd coral sang Ocul	1
Sediment- (circle all: sand shell mud)	60		" O cul	1
Macroalgae- Fleshy+Calcareous	0		" Ocul	1
Turf- algae+cyanobacteria (circle all: g r b)	5			
Encrusting Red Algae	0			
Sponge	3			
Hydroid	0			
Octocoral	1			
Stony Coral	1			
Tunicate	0			
Bare Hard Substrate	27			
other-... Ses	2			
Bryo 2	1			

Total Must = 100%

Quad 3

Quad Label: 3	Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5			
Max Sediment Depth (cm)	15			
Sessile Benthos...	% Cover			
Sediment- (circle all: sand shell mud)	97			
Macroalgae- Fleshy+Calcareous	0			
Turf- algae+cyanobacteria (circle all: g r b)	1			
Encrusting Red Algae	0			
Sponge	0			
Hydroid	0			
Octocoral	0			
Stony Coral	0			
Tunicate	0			
Bare Hard Substrate	1			
other-... Ses	1			

Total Must = 100%

Quad 4

Quad Label: 25	Sample Name or #		List macroalgae Genus % / List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15		sm as Ocul ng	1
Max Sediment Depth (cm)	6			
Sessile Benthos...	% Cover		Sarg	1
Sediment- (circle all: sand shell mud)	60			
Macroalgae- Fleshy+Calcareous	2			
Turf- algae+cyanobacteria (circle all: g r b)	3			
Encrusting Red Algae	3			
Sponge	1			
Hydroid	2			
Octocoral	0			
Stony Coral	1			
Tunicate	0			
Bare Hard Substrate	26			
other-... Bryo 2	2			

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu; Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

| Project Name | | Site Name / Transect Name | |
| Date | | Data Collector | |

Quad 1 (top left)

Quad Label: 10 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	5	Lept u	60
Max Sediment Depth (cm)	3	Sarg	5
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	25		
Macroalgae- Fleshy+Calcareous	5		
Turf- algae+cyanobacteria (circle all: g r (b))	3		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	4		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate 54	6		
other-... Bar/2	5		

Total Must = 100%

Quad 2 (top right)

Quad Label: 12.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	15	OR	+0
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	96		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r (b))	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-... Ses win	1		

Total Must = 100%

Quad 3 (bottom left)

Quad Label: 15 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	9	Lept.	32
Max Sediment Depth (cm)	6	Sarg	2
Sessile Benthos...	% Cover	Teleg u	6
Sediment- (circle all: sand shell mud)	70		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r (b))	5		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	1		
Octocoral	1		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	7		
other-... ses mum	2		
Bryo	1		

Total Must = 100%

Quad 4 (bottom right)

Quad Label: 17.5 Sample Name or #		List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10	Lept u	60
Max Sediment Depth (cm)	5	Sarg	10
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	5		
Macroalgae- Fleshy+Calcareous	10		
Turf- algae+cyanobacteria (circle all: g r (b))	44		
Encrusting Red Algae	15		
Sponge	0		
Hydroid	6		
Octocoral	2		
Stony Coral	0		
Tunicate	3		
Bare Hard Substrate	15		
other-...	0		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

Quad Label: 27.5
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	4		
Sediment- (circle all: sand shell mud)	99		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0	O robusta	2
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	0		
other-...			

Total Must = 100%

Quad Label: 25
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	8		
Max Sediment Depth (cm)	5		
Sediment- (circle all: sand shell mud)	94		
Macroalgae- Fleshy+Calcareous	0	O. robusta	1
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	1		
other-... Worm	2		

Total Must = 100%

Quad Label: 225
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	21		
Max Sediment Depth (cm)	3		
Sediment- (circle all: sand shell mud)	89		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1	O robusta x3	1
Sponge	0		
Hydroid	1		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	4		
other-... worm	3		

Total Must = 100%

Quad Label: 20
Sample Name or #

Sessile Benthos...	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	5		
Sediment- (circle all: sand shell mud)	92		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	5		
other-... worm	1		

Total Must = 100%

FISH - Long spine porgy
- Black sea bass
- Sand diver   - Echino.
- Toad fish   - various

Project Name NJTB   **Site Name / Transect Name** USACE 3

Date 20-Oct-05   **Data Collector** KH

Quad Label: Sample Name or # 47.5	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	1		
Max Sediment Depth (cm)	8		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	85		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	1		
Encrusting Red Algae	0		
Sponge	1		
Hydroid	0		
Octocoral	1	Leptoptero yellow	24cm
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	4		
other-... Vermitid Bryo	7		

Total Must = 100%

Quad Label: Sample Name or # 45	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	0		
Max Sediment Depth (cm)	13		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	100		
Macroalgae- Fleshy+Calcareous			
Turf- algae+cyanobacteria (circle all: g r b)			
Encrusting Red Algae			
Sponge			
Hydroid			
Octocoral			
Stony Coral			
Tunicate			
Bare Hard Substrate			
other-...			

Total Must = 100%

Quad Label: Sample Name or # 42.5	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	4		
Max Sediment Depth (cm)	14		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	97		
Macroalgae- Fleshy+Calcareous	0		
Turf- algae+cyanobacteria (circle all: g r b)	0		
Encrusting Red Algae	0		
Sponge	0		
Hydroid	0		
Octocoral	0	Arenaria sp	4cm
Stony Coral			
Tunicate	0		
Bare Hard Substrate			
other-... Vermitld	1		

Total Must = 100%

Quad Label: Sample Name or # 40	% Cover	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	14		
Max Sediment Depth (cm)	10		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	92		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2	clear, pink	
Encrusting Red Algae	1	w/ 2 pple Upin	
Sponge	2		
Hydroid	0		
Octocoral	0		
Stony Coral	0		
Tunicate	0		
Bare Hard Substrate	1		
other-... Bryo,	2		

Total Must = 100%

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...

Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl

Stony Coral: Genus species of each colony = G spe: A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...

Coral condition: W=white disease(s), O=other disease(s), B=bleaching, Coral Stress Index # 0 1 2 3

Other- includes: Anemone, Annefid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.

ID: 188

Quad Label: Sample Name or #	37.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	13	foil roll up	1
Max Sediment Depth (cm)	4	Dcty.	1
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	83		
Macroalgae- Fleshy+Calcareous	2		
Turf- algae+cyanobacteria (circle all: g r b)	5		
Encrusting Red Algae	2		
Sponge	1		
Hydroid	1		
Octocoral	1	Leptoptero	34
Stony Coral	2	Oculina sp	2 cm
Tunicate	0	Oaulina	
Bare Hard Substrate	1	telesto	<1
other- Bryo	1		bleached
Vermitid	1	Total Must = 100%	

ID: 189

Quad Label: Sample Name or #	35	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	10		
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	45		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	3		
Encrusting Red Algae	5		
Sponge			
Hydroid	0	telesto	<1
Octocoral	1	orga	
Stony Coral	1	M	
Tunicate	1		
Bare Hard Substrate	27	Oculina rob	2cm
other- Vermitid	3	recruits	<1cm x 3
Bryo	3	Total Must = 100%	

ID: 190

Quad Label: Sample Name or #	32.5	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	11		
Max Sediment Depth (cm)	4		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	80		
Macroalgae- Fleshy+Calcareous	1		
Turf- algae+cyanobacteria (circle all: g r b)	2		
Encrusting Red Algae	1		
Sponge	0		
Hydroid	0		
Octocoral	0	Oaulina sp	<1cm x 22
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	9		
other- Vermitid	0		
Total Must = 100%			

Quad Label: Sample Name or #	30	List macroalgae Genus % List every coral colony ~and coral condition(s)	% cover or max size (cm)
Max Relief (cm)	12	Dictyota	1
Max Sediment Depth (cm)	3		
Sessile Benthos...	% Cover		
Sediment- (circle all: sand shell mud)	86		
Macroalgae- Fleshy+Calcareous	1	O. robusta	3
Turf- algae+cyanobacteria (circle all: g r b)	5	dead O robusta	
Encrusting Red Algae	1	Lepto	25
Sponge	1		
Hydroid	1		
Octocoral	1		
Stony Coral	1		
Tunicate	0		
Bare Hard Substrate	2		
other- bryozoan	1		
Total Must = 100%			

Standard Abbreviations: and abbreviation formats

Macroalgae: Pool to Genus = Genu or Genus: Avra, Bryopsis, Bryothamnion, Caul, Codi, Dasya, Dasycladus, Grac, Hali, Hypn, Sarg...
Octocoral: Genus of each colony = Genu: Gorg, Lept, Plex... except Pseudopterogorgia=Pspt, Plexaurella=Plla, Pseudoplexaura=Pspl
Stony Coral: Genus species of each colony = G spe; A cer, A aga, C nat, M ann, M cav, P ame, O dif, S rad, S sid, S bou, S hya, S int...
Coral condition: W=white disease(s), O=other disease(s), B=bleaching. Coral Stress Index # 0 1 2 3
Other- includes: Anemone, Annelid-sessile, Barnacle, Bryozoan, Millepora sp., Mollusca-sessile, Seagrass, Zoanthid.